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Flood Risk Assessment

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1. Introduction

1.1 Project Background

Civic Engineers have been commissioned by Far East Consortium International Ltd (FEC) to provide a flood risk assessment and drainage advice to support a Full Planning Application for the construction of a proposed residential-led development and associated infrastructure at land east of Rochdale Road, Collyhurst, Manchester, known as Collyhurst Village.

1.2 Scope and Objectives

The assessment has been undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for Flood Risk Assessments as outlined in the Communities and Local Government's Planning Practice Guidance to the National Planning Policy Framework (NPPF).

In April 2015, the Government made changes to the National Planning Policy Framework which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for 'major' developments. A drainage strategy will therefore be required as part of the Full Planning Application for the development as the proposals are considered 'major' development under the Town and Country Planning Order 2015.

This Flood Risk Assessment will:

- Investigate all potential risks of flooding to the site.
- Consider the impact the development may have elsewhere with regards to flooding.
- Consider proposals to mitigate any potential risk of flooding determined to be present; and,
- Consider drainage proposals to mitigate flood risk from the site.

This report reviews the following information:

- Environment Agency Online Flood mapping.
- UK Government Long Term Flood Risk Information for surface water flooding and reservoir flooding.
- Drainage and Utilities surveys
- Site Investigation Plans including Topographical Survey, Geotechnical Constraints Plan, Drainage and Utility Surveys, Groundwater Flood Map, Phase 1 Preliminary Assessment.

1.3 Development Proposals

Detailed planning permission for a residential-led, mixed-use development on land to the east of Rochdale Road, Collyhurst, Manchester, known as 'Collyhurst Village'. The development proposals will include:

- 244 residential dwellings;
- 155 sqm of commercial space;
- A new "Collyhurst Park";
- Access; and

- Associated infrastructure

The proposed site layouts are presented in **Appendix A.**

2. Existing Site Details

2.1 Location

The proposed development is located within the Collyhurst area of Manchester which is approximately 2.4km northeast of the city centre. The development will occupy a site, within the Collyhurst Village neighbourhood of Manchester City Council's (MCCs) Northern Gateway Strategic Regeneration Framework (SRF). The outline of the site is shown indicatively in Figure 1.

The site is bound by wooded area to the north, Burgess St and Anslow Close to the east. Shellard Road to the south and Rochdale Road to the west. Paget St crosses the site from east to west and Thornton St North runs through the site from north to south. National Grid Reference is 385601,400151 and nearest postcode is M40 7XH.

The site location is shown in Figure 1.

Figure 1 - Site location plan- Collyhurst Village

2.2 Topography

A topographical survey was undertaken by Survey Operations in December 2019 and indicates the following:

The site falls from the north-west to the south west. The lowest point is shown as approximately 53.00mAOD south west of the site whilst the highest point is approximately 62.3mAOD north of the site.

2.3 Geology

The online BGS records within the site are confidential/restricted access.

A Phase 1 Preliminary Risk Assessment (PRA) and Mining Risk Assessment was carried out by LK group in February 2020, investigating the existing ground conditions present on the Collyhurst Village site.

Geology is mapped as Till over Pennine Coal Measures in the north and central parts of the site. Penning Upper Coal Measures in the south and central part of the site and Worsley Delf Rock in the southern part of the site. A limited trial hole survey identified made ground on site comprising demolition rubble, plastics, metals, ash, and clinker. It is noted that given the history of the site, deep made ground may be present in localised areas of the site.

The site is above a Secondary A Aquifer. The PRA identified the following site-specific elements that need to be investigated further prior to any construction works being commenced:

- Deep made ground and/or obstructions remnant from previous developments including housing and former reservoir; and
- Potentially variable superficial deposits.

Due to the nature of the site and existing constraints including the presence of made ground; asbestos, hydorcarbons, other organic or inorganic contaminants and gas were identified on site. Therefore, due to the risk of contamination, infiltration is not currently recommended. The Phase 1: PRA is included in **Appendix B.**

2.4 Culverted Watercourses

Desk study and drainage surveys undertaken at the site have identified that there are two culverts that pass beneath the site, both of which are understood to be associated with the Moss Brook which is classed as a main river. One of the culverts is understood to enter the site from the north before turning ninety degrees and exiting towards Rochdale Road, the second culvert generally follows the line of Thornton Street North (previously known as Culvert Street) but mapping suggests that the culvert veers to the west as it reaches the southernmost part of the site, running across the street currently known as Overbrook Street. The approximate alignment is illustrated in Figure 2 - Approximate alignment of large diameter culverts beneath the site.

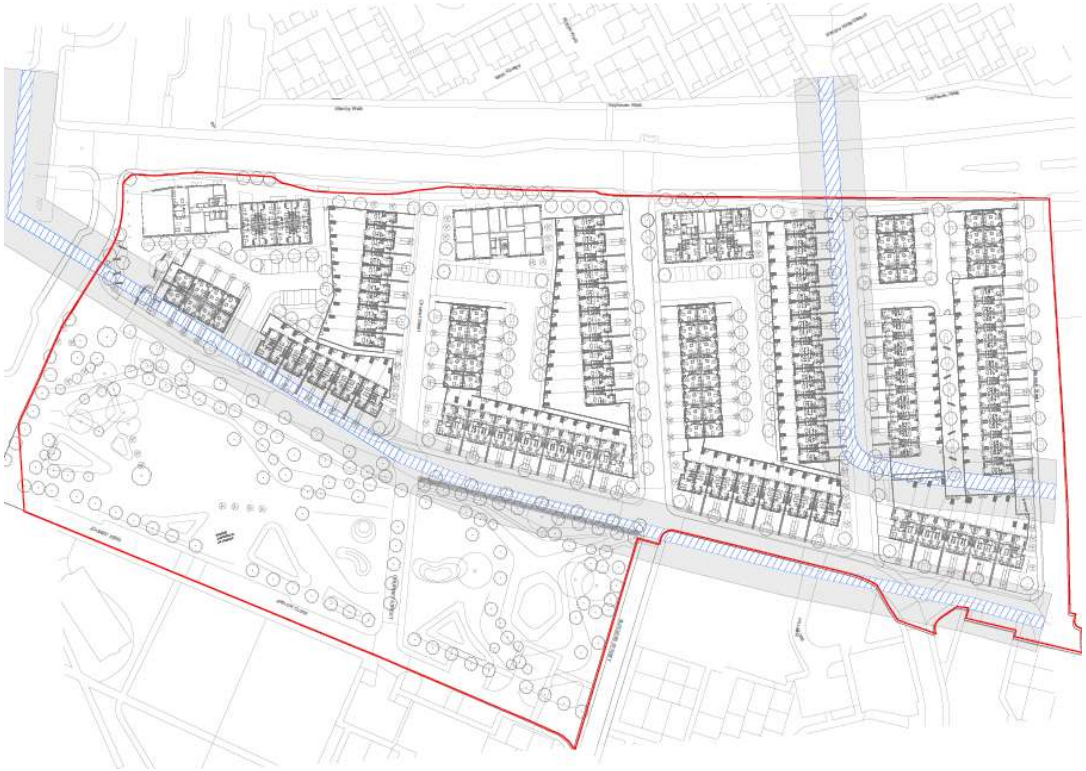


Figure 2 - Approximate alignment of large diameter culverts beneath the site.

Surveys suggest that the northern most culvert runs at a depth of approximately 24m as it passes beneath the site, and that the culvert along Thornton Street North runs at approximately 13m deep.

Consultation has been undertaken with the Environment Agency (EA) who advised that should any works be undertaken in the vicinity of the culverts, it will be important to ensure that no additional loading is placed on the culvert and that adequate access is provided for any future maintenance.

2.5 Existing Drainage

A drainage survey was carried out in May 2020 by Layer Surveys Ltd and the findings are included in **Appendix B**.

The drainage survey shows the following drainage networks located within the site boundary.

- A 225-300mm diameter surface water network running north-east, discharging into a manhole within Stretton Close;
- A 225-300mm diameter foul water network running north-east, discharging into a manhole within Stretton Close;
- There is a surface water network running within the culvert located in the northern parcel of the site, running in a west to east then northernly direction; and
- Two culverted watercourses run beneath the site at depths of between 10m and 20m. Both of these culverts are associated with the Moss Brook.

3. Relevant Policy and Guidance

3.1 National Planning Policy Framework

In February 2019 the Ministry of Housing, Communities and Local Government revised the National Planning Policy Framework document (NPPF) and the Planning Practice Guidance which provides guidance on how flood risk should be assessed during the planning and development process.

The NPPF refers to the Flood Zones which are shown on the EA Flood Map, and establishes the range of uses which are appropriate, or compatible, land uses for each Flood Zone.

The Flood Zones can be summarised as follows:

Zone 1: Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year. (<0.1%);

Zone 2: Medium Probability. This zone comprises land assessed as having between 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year;

Zone 3a: High Probability. This zone comprises land assessed as having 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year; and

Zone 3b: Functional Flood Plain. This zone comprises land where water must flow or be stored in times of flood. Strategic Flood Risk Assessments should identify this zone.

The 'Technical Guidance to the National Planning Policy Framework' defines the type and nature of different development classifications in the context of their flood risk vulnerability. The following extract outlines the NPPF Flood Risk Vulnerability Classifications.

More vulnerable

- Hospitals.
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non–residential uses for health services, nurseries and educational establishments.
- Landfill and sites used for waste management facilities for hazardous waste[6].
- Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan.*[7]

Less vulnerable

- Police, ambulance and fire stations which are *not* required to be operational during flooding.
- Buildings used for shops, financial, professional and other services,

Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.
- Wind turbines.

Highly vulnerable

- Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use[3].
- Installations requiring hazardous substances consent[4]. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure")[5].

restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non–residential institutions not included in "more vulnerable", and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do *not* need to remain operational during times of flood.
- Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).

Water-compatible development
- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, ***subject to a specific warning and evacuation plan***.

Figure 3 - Table 2 from Technical Guidance to the National Planning Policy Framework (2012)

The flood risk vulnerability and flood zone 'compatibility' has been summarised in Table 1 below.

Flood Risk Vulnerability Classification (see Table 2)		**Essential Infrastructure**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**	**Water Compatible**
Flood Zone (See Table 1)	Zone 1	√	√	√	√	√
	Zone 2	√	Exception Test Required	√	√	√
	Zone 3a	Exception Test Required	×	Exception Test Required	√	√
	Zone 3b (functional floodplain)	Exception Test Required	×	×	×	√
	√ Development is appropriate × Development should not be permitted.					

Table 1 Flood Risk vulnerability and flood zone compatibility from NPPF Technical Guide

3.2 Site Specific NPPF Flood Risk Categorisation

To assess the NPPF flood risk classification for the site, the Government web based 'Flood Map for Planning' is reviewed, the flood map identifies the probability of flooding from rivers or sea (not taking into account the presence of flood defences). The Government web based 'Long Term Flood Risk Assessment for Locations in England' should also be used to identify the flood risks from rivers and seas, surface water and reservoirs.

From the EA 'Flood Map for Planning', shown in Figure 4 The proposed site sits within Flood Zone 1.

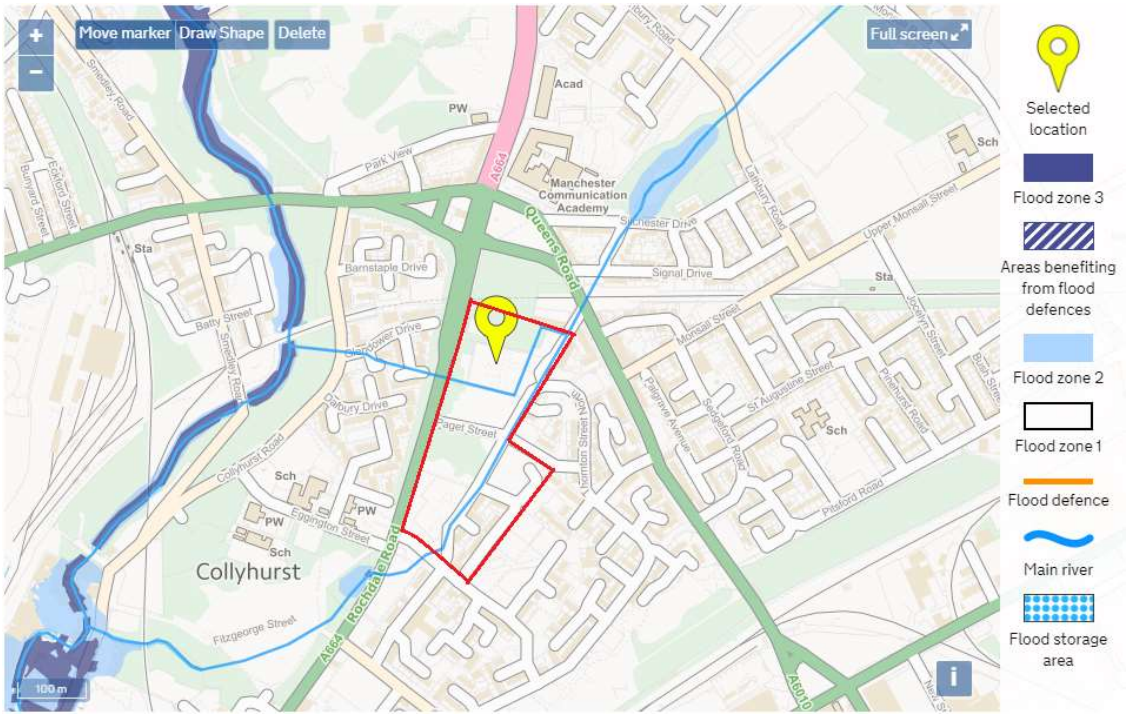


Figure 4 - EA Flood Map for Sites

3.3 Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA)

Manchester City, Salford City and Trafford Councils SFRA states:

> *"Development should aim for a minimum reduction in surface water runoff rates of 50% for Brownfield sites, with an aim of reducing runoff to Greenfield rates up to a 1 in 100-year storm event, considering climate change"*

And

> *"Manchester Strategic Housing Site - Collyhurst M0013*
>
> *The Irk and Moston Brook flow through this site. Moston Brook is in culvert for the reach through this site. The Flood Zone maps show that there is limited flood risk associated with this culvert at the site, but the risk of blockage would need to be explored in more detailed studies. Flood waters are predicted to remain in bank for the 1 in 100 year and 1 in 100 year plus climate change event. River waters exceed bank top in the 1 in 1000 year event but the flood extent is minimal with the effect restricted to a localised area around the Irk."*
>
> *"Development should be designed so that there is no flooding to the development in a 1 in 30-year event and so that there is no property flooding in a 1 in 100 year plus climate change event."*

Manchester City Council's and Trafford Council's Sustainability Appraisal have a flood risk objective to *'Reduce the impacts of climate change'*, with the sub-objective to, '*minimise risk of flooding and increase use of SuDS*'. There are two indicators for Manchester and Trafford:

- New developments incorporating SuDS

The key objectives of a SFRA are to:

- Investigate and identify the extent and severity of flood risk to the area at present and in the future, under the terms of PPS25.
- Contribute to the Council's Sustainability Appraisal (SA) and LDF.
- Enable the Council to apply the Sequential Test and the Exception Test.
- Provide strategic flood risk guidance and advice to planners and developers.
- Help LPAs to identify specific locations where further and more detailed flood risk data and assessment work is required. This includes the scope for Surface Water Management Plans (SWMPs) and/or Water Cycle Studies (WCSs).
- Identify the level of detail required for site-specific FRA's.

4. Flood Risk Assessment

The potential sources of flooding to the development have been assessed and are discussed below.

4.1 Rivers and Sea Flooding

From the Government flood map for planning:

- Where a site is in a dark blue shaded zone, this indicates that the site is within an area of high flood risk where there is a chance of flooding of greater than 1 in 30 (3.3%).
- Where a site is in a blue shaded zone, this indicates that the site is within an area of medium flood risk where there is a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%).
- Where a site is in a lighter blue shaded zone, this indicates that the site is within an area of low flood risk where there is a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Where a site is not shaded, this indicates that the site is within an area of very low flood risk where there is a chance of flooding of less than 1 in 1000 (0.1%).

Flood risk to the site from rivers and seas is indicated in Figure 5. The site is within an unshaded area and therefore has Very Low risk of flooding from rivers or sea.

Figure 5 - EA Rivers & Seas Flood Risk Map

The culverted watercourse is between 10-20m deep beneath the site and there are no known instances of flooding associated with these culverts as such the risk of flooding from the culverted watercourses is Low.

It is the riparian responsibility of the landowner to maintain free flow through the culverted structure.

4.2 Reservoir Flooding

Reservoir flooding is extremely unlikely to happen and there has been no recorded loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly, and essential safety work is carried out.

Flood risk to the site from reservoirs is indicated in Figure 6 and the site is within an area classified as outside the maximum extent of flooding.

Figure 6 - Reservoir Flood Risk Map

4.3 Groundwater Flooding

From research attained from the Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA Ground water flooding maps the development does not appear to be in an area at risk of flooding from ground water. Groundwater map extract from the SFRA is included in **Appendix B.**

4.4 Public Sewers, Highway Drainage Flooding and Infrastructure Failure

As mentioned within Section 2.2 of this report, a drainage survey is included in **Appendix B**. There are a number of surface and foul water sewers within the vicinity of the site.

Providing Untied Utilities and MCC maintain their drainage assets in the surrounding area of the site, the risk of flooding to the proposed development site from public sewer or highway drainage is Low.

4.5 Surface Water Flooding to the Site

Surface water flooding can be caused when rainwater, during extreme rainfall events, does not drain away through the normal drainage system or soak into the ground. Surcharging sewers can result in overland flows which if originating at a higher elevation than a development site can potentially pose a flood risk.

Surface water flooding is dependant primarily on topography which dictates either the flow path of overland flow which is not contained within public sewers, or areas in which ponding may occur.

Surface water flooding is more difficult to predict than the risk of flooding from Rivers or Sea as it is dependent on the amount of rain which will fall in a very localised area, the specific topography of that region and the capacity and functionality of the drainage network within that section.

From the UK Government's Flood Risk from Surface Water (extent of flooding) map.

- Where a site is in a dark blue shaded zone, this indicates that the site is at high risk of flooding where there is a chance of flooding of greater than 1 in 30 (3.3%).
- Where a site is in a mid-blue shaded zone, this indicates that the site is at medium risk of flooding where there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- Where a site is in a light blue shaded zone; this indicates that the site is at low risk of flooding where there is a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Where a site is in a white (unshaded) area; this indicates that the site is at very low risk of flooding where there is a chance of flooding of less than 1 in 1000 (0.1%).

The extent of flooding to the site from surface water is indicated in Figure 7 and the majority of the site is at very low risk and some low to high risk of surface water flooding.

Figure 7 - Surface Water Flood Risk Map

4.6 Surface Water Flooding from the Site

Developers are responsible for ensuring that new development does not increase the flood risk elsewhere. The proposed surface water drainage network shall be designed to not flood for the critical 1 in 30-year storm event and flood water generated up to the critical 1 in 100-year plus climate change storm event shall be constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

The development has the potential to increase flood risk where additional run-off from proposed roads and paved areas are discharged freely into the downstream drainage networks. It is therefore

encouraged to propose permeable areas, landscaping areas and incorporate sustainable drainage features utilising infiltration or attenuation where possible.

The proposed site-wide drainage system is intended to manage and mitigate the potential surface water and groundwater flood risk identified. Any ponding and flow routes will be addressed within the drainage strategy. A detailed assessment of the proposed surface flows is carried out within the drainage strategy within Section 5 of this report.

4.7 Summary of Flood Risk

From the evidence collated and subsequent negotiations, the flood risk proposed to the development can be summarised as follows:

- Rivers and Sea – Very Low Risk;
- Reservoir –Very Low Risk;
- Groundwater – Very Low Risk;
- Public Sewers – Low Risk; and
- Surface Water – Very Low Risk, with some areas at low to high risk.

5. Works in the Vicinity of the Culverted Watercourse

Layer surveys carried out surveys of the culverts in June 2020. This are included in **Appendix B**. The surveyor used a deep bore SONDE to plot the location. Due to the depth the surveyor placed a 1.5m tolerance on the location (0.75m either side of the outside wall).

The foundation design near to the culverts will be piled so has to take the loads below the culvert level. Where the buildings are close to the culvert a cantilever ground beam off the piles will be implemented.

The existing manholes will not be altered and left in the current location so as not to disturb accessibility. No units will be built over the culvert.

6. Surface Water Management Strategy

6.1 Existing Site Drainage

The status of the existing site drainage has been confirmed within the drainage survey records, included in **Appendix B**. There are (assumed) existing United Utilities (UU) surface water and foul water networks located within Rochdale Road and Stretton Close. Catchment plans for the existing site are included in **Appendix E**.

6.2 Drainage Hierarchy Points of Discharge

The NPPF Planning Practice Guidance Paragraph 080 states that:

"Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

1. *into the ground (infiltration).*
2. *to a surface water body.*
3. *to a surface water sewer, highway drain, or another drainage system.*
4. *to a combined sewer."*

Infiltration

Infiltration is not considered feasible for this development due to the historic nature of the site and potential contamination sources affecting the site where identified as heavy metals, PAH's, Sulphate, Hydrocarbons, other organic or inorganic contaminates and gas may pose a contamination risk. A Site Investigation report is included in **Appendix B**.

Water Body

There are two culverts that pass beneath the site, both of which are understood to be associated with the Moss Brook. One of the culverts is understood to enter the site form the north before turning 90 degrees and existing towards Rochdale Road. The second culvert generally follows the line of Thornton Street North, mapping suggests that the culvert veers to the west as it reached the southernmost part of the site, running across the street currently known as Overbrook St. The culverts are understood to vary in depth between 10m-20m below the site.

The River Irk is approximately 240m to the west of the site.

The Rochdale canal is approximately 900m to the southeast of the site.

Surface Water Sewer

There are a number of surface water networks within and in the vicinity of the site.

Combined Sewer

No combined sewers have been identified within the site.

Any connection to the public sewer network will be subject to a formal agreement with the sewerage provider under Section 106 of the Water Industry Act 1991.

Summary

The surface water discharge options are summarised below in Table 2.

Table 2 - Summary of Surface Water Disposal

Surface Water Disposal Method	Potential	Description
Infiltration	✗	Unfeasible due to made ground contamination risk, Ground Investigation included in Appendix B.
Water Body	✓	There are culverts within the immediate vicinity of the site, however these are too deep, and it is not feasible to discharge surface water here. It is proposed to discharge to the existing UU network which ultimately discharges to the culvert beneath Thornton Road.
Surface Water Sewer	✓	It appears that the existing UU network discharges into the culvert beneath Thornton Rd. It is therefore proposed to discharge to the surface water sewer network which then in turn discharges to the watercourse beneath the site.
Combined Water Sewer	✗	There is no combined network within vicinity of the site.

6.3 Post-development Runoff and Attenuation

The site is defined as brownfield through planning as it has previously been developed, therefore, it is proposed to restrict run off to brownfield discharge rates including a 50% betterment in line with the requirements of the SFRA. Catchment plans for the proposed sites are included in **Appendix E**. Details of proposed runoff rates are presented in Table 3 - Proposed Flow Restrictions and Estimates Storage Requirements.

Table 3 - Proposed Flow Restrictions and Estimates Storage Requirements

Catchments	Total Area (m^2)	Impermeable Area (80%) (m^2)	Permeable Area (20%) (m^2)	Existing Qbar Run Off rates	Existing Brownfield Discharge rates	Post Development Discharge rate (Brownfield 50% Betterment) (l/s)	Attenuation Volume: 1:100+40%CC Requirements (m^3)
Catchment A	7331m^2	5865 m^2	1466 m^2	N/A	34.8 l/s	17.4 l/s	225 m^3
Catchment B	6627m^2	5302 m^2	1325 m^2	5.1l/s	N/A	3.8 l/s (Greenfield Qbar)	212 m^3
Catchment C	7797m^2	6238 m^2	1559 m^2	5.2l/s	N/A	5.2 l/s (Greenfield Qbar)	251 m^3
Catchment D	7687m^2	6150 m^2	1537 m^2	N/A	45 l/s	22.5 l/s	246 m^3

In July 2020, the EA released updated climate change allowances for peak rainfall intensities which should be applied to new developments. Table 4 demonstrates the climate change allowances with central and upper end allowances being considered.

Table 4 - Extract Environment Agency Guidance) Peak Rainfall Intensity Allowance in small and urban catchments

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

Based on the nature of the development, a lifespan in excess of 60 years is anticipated. The potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, the design will consider an allowance of 40% climate change on peak rainfall intensity for calculations.

In restricting the flows from the development site to the brownfield with 50% betterment rate there will be a requirement to provide attenuation to accommodate flows up to the critical 1 in 100-year event with a climate change allowance of 40%. The purpose of the attenuation being to maintain operation of the system during the 1 in 1yr, 1 in 30yr and the 1 in 100yr (plus climate change) storm events.

The required volume of attenuation has been calculated using Micro Drainage based on the proposed development areas. Proposed attenuation volumes are as detailed in Table 3 above.

6.4 Sustainable Drainage Systems (SuDS)

Section 1.1 of the SuDS Manual (Ciria C753) states the following:

> *"Sustainable drainage systems (SuDS) can deliver multiple benefits.*
>
> *Surface water is a valuable resource, and this should be reflected in the way it is managed and used in the built environment. It can add to and enhance biodiversity, beauty, tranquillity and the natural aesthetic of buildings, places and landscapes and it can help make them more resilient to the changing climate.*
>
> *The philosophy of sustainable drainage systems is about maximising the benefits and minimising the negative impacts of surface water run-off from developed areas.*
>
> *The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area to manage downstream flood risk and reducing the risk of that runoff causing pollution. This is achieved by harvesting, infiltrating, slowing, storing, conveying and treating runoff on site and, where possible, on the surface rather than underground. Water then becomes a much more visible and tangible part of the built environment, which can be enjoyed by everyone."*

The SuDS Manual describes the four pillars of SuDS design as Water Quality, Water Quantity, Amenity and Biodiversity as illustrated in Figure 8 below.

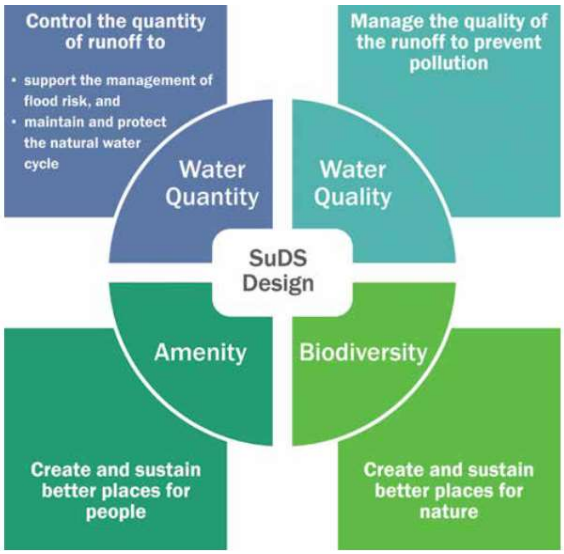


Figure 8: Sustainable Development Objectives (Representation of Figure 2.1 of The SuDS Manual)

The drainage strategy is proposed to include source control measures including nature based solutions such as raingardens and tree pits. Source control measures will discharge to a below ground piped network which will then discharge to a retention basin within the proposed Park or other site level SuDS features. Ultimately it is proposed that the surface water will discharge to the culverted watercourse via the UU network beneath Thornton Street North.

Surface Water Drainage Strategy drawings have been produced for the proposed development and are included in **Appendix E** of this report showing indicative drainage connection points and layouts incorporating attenuation and SuDS features.

7. Proposed Foul Water Drainage

Based on currently available information the proposal includes collecting the foul drainage from each building via a conventional piped system and running to a connection to the existing United Utilities network within Thornton Street at an unrestricted rate. Preferred connection/s to be confirmed and agreed with UU.

Any connection to the public sewer is subject to formal agreement with United Utilities under Section 106 of the Water Industry Act 1991. The proposed drainage strategy plan is enclosed in **Appendix E.**

8. Conclusion

The development is located Flood Zone 1 and is within the low/no risk area for river, sea, groundwater, and reservoir and low risk for surface water. The site is defined as brownfield through planning as it has previously been developed, therefore, it is proposed to restrict run off to brownfield including a 50% betterment rates for the new development.

Collyhurst Village is classed as a Brownfield site as it is the location of a former reservoir which was subsequently filled in and replaced with terraced housing, which later where replaced by larger detached properties and other facilities including a Day nursery. As time progressed the site was cleared, and a care home was situated to the north of Paget St with further housing delivered.

Online BGS records are confidential/restricted. The PRA concludes that the sites geology are generally defined as follows:

- Deep made ground and/or obstructions remnant from previous developments including housing and former reservoir.
- Potentially variable superficial deposits.

Due to the nature of the site and existing constraints including the presence of made ground, asbestos, hydorcarbons other organic or inorganic contaminants and gas were identified on site. Therefore, due to the risk of contamination, infiltration is not currently recommended. Phase 1: Preliminary Risk assessments is included in **Appendix B**.

Foul Water flows will also be conveyed using a traditional pipe system before discharging to the existing United Utilities sewage system present in the area. The discharge point is to be agreed and confirmed with UU.

The LLFA has requested that catchment A and D is restricted to brownfield runoff rates, with catchments B and C restricted to greenfield runoff rates.

For the purposes of the drainage strategy, the surface water flow from the site catchments A and D will be restricted to 1 in 1 year Brownfield rate with a 50% betterment. Whilst catchments B and C will be restricted to greenfield runoff rates. The proposed surface water system has been designed to accommodate the critical 1 in 100 year plus 40% climate change event.

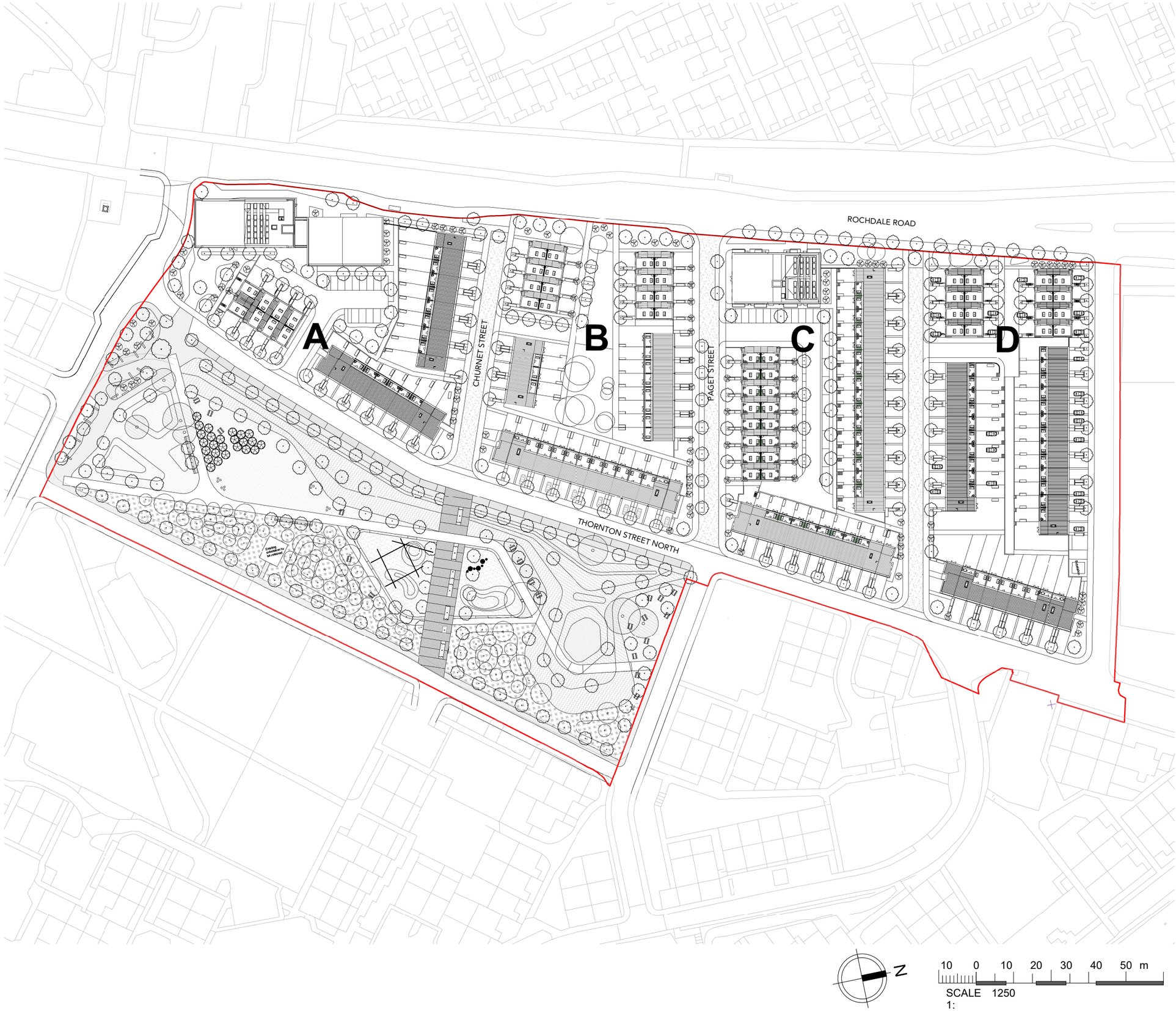
The nearest waterbody to the site is the river Irk is approximately 240m west of the sites and Rochdale canal is approximately 900m east of the sites. It is not feasibly to directly discharge surface water to either of these watercourses.

A Pre-Development Enquiry has been issued to both UU and the LLFA to confirm preferred points of connection and allowable discharge rates. Response and minutes to meeting held with the LLFA are included in **Appendix C.**

Civic Engineers

APPENDIX A

Proposed Site Plan



Note:
Do not scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

Plot A

Houses:	28
No. of Apartments:	50
Apartment Storeys:	6 Storeys
Apartment Building Height:	23.100m (Top of Lift Overrun)

Plot B

Houses:	43

Plot C

Houses:	46
No. of Apartments:	26
Apartment Storeys:	5 Storeys
Apartment Building Height:	17.325m (Top of Lift Overrun)

Plot D

Houses:	51

Total **244**

Note: Tallest housetype 4 storeys (top level roof garden).
10.8m to ridge height.

Rev	Date	Intls	Details
P6	04/12/20	LH	Updated to incorporate FEC Comments
P5	02/12/20	LH	Updated 2 Apartment Block Scheme
P4	27/10/20	LH	Red Line Boundary Updated
P3	30/09/20	LH	EIA Issue
P2	11/09/20	LH	EIA Issue
P1	17/04/20	GC	Stage 2 Issue
P0	09/04/20	GC	Tenure Update

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W www.buttress.net

Project Title	Collyhurst Housing
Client	FEC
Location	Manchester
Drawing Title	Proposed Site Location Plan

Date	04/12/2020 13:55:32	**Scale**	1 : 1250
Checked	GC	**Orig Paper Size**	A3
Job No:	**8871**	**Status**	**PRELIMINARY**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

8871-BA-MP-00-DR-A- (04)706- P6

APPENDIX B

Surveys & Maps

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Note:

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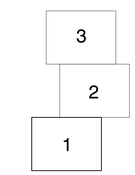
Name	Easting	Northing	Height
JM1	385591.98	400216.67	54.67
JM2	385636.09	400298.16	56.10
JM5	385665.02	400353.03	57.54
JC2	385617.53	400139.54	56.44
JC3	385668.55	400139.26	56.44
JC4	385554.33	400079.72	56.28
JC5	385547.79	400109.86	55.85
JC6	385535.33	400150.74	55.38

STANDARD REFERENCE & ABBREVIATIONS

(AM)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellaha Beacon	MB..... Multi-Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BO..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... Open Paling	O/P..... Ordnance Survey Bench Mark
BWTR..... Brick Retaining Wall	OC..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Colum	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Ramp Level
CTV..... Cable Television	SOF..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SWTR..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFB..... Taken From Records
EL..... Exess Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TRIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GY..*..... Girth (of tree)	U/G..... Underground
GL..... Gulley	UTL..... Unable to Life (BM,IE etc)
GNB..... Gabion	UTS..... Unable to Survey
GUP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GWM..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/B..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

Sheet Layout



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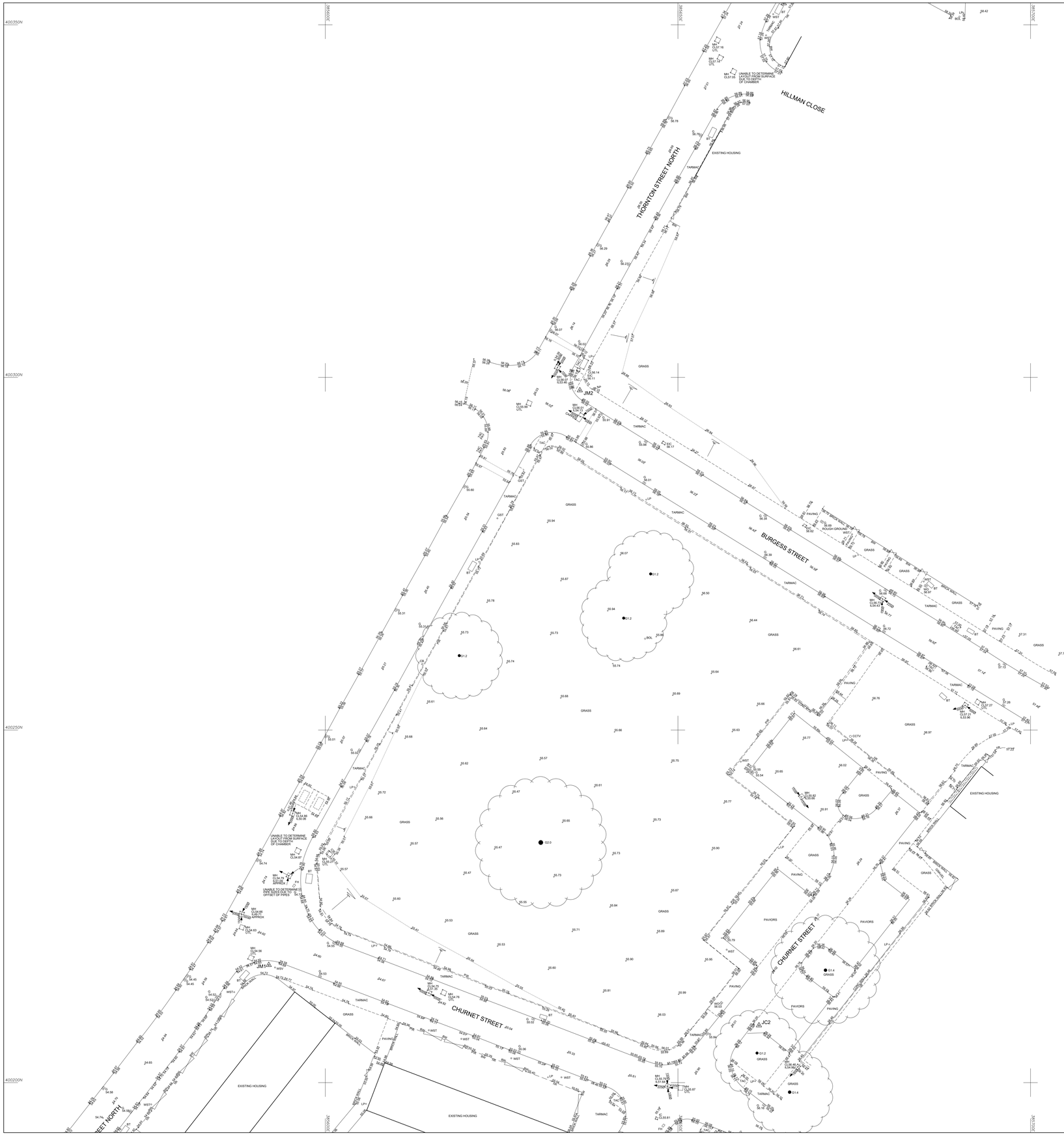
Email: mail@survops.co.uk – www.survops.co.uk

Client
Far East Consortium International Limited

Drawing Title
Topographical Survey of Land at:
Collyhurst Survey Area 2
Manchester
Sheet 1 of 3

Scale(s)	1:200	Surveyor	JM
Date	Mar 20	Drawn	OKS
Job Number	20C045	Checked	TP

Sheet Size & Drg Number & Revision
A0 20C045/001



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AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BS.....Bollahs Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box.....British Telecom Box
BT.....British Telecom IC
BRTK.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL.....Chain Link
CHY.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTN.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CWA.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FY.....Flagpole
G/.....Gulley (if trap)
G.....Gulley
GAB.....Gabion
GIP.....Gas Inlet Pipe
GMM.....Gas Marker
GOT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
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IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MS.....Multi-Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
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PT.....Post or Pillar
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RS.....Road Sign
RTN.....Retaining Wall
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SAP.....Sapling
SL.....Sump Level
SOF.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTN.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
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TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
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TIE.....Anchor Point (Boats/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TNE.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trade Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (BM,IC etc)
UTS.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
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WM.....Water Meter
WO.....Bash Out
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WSV.....Water Stop Valve (Mains)

Sheet Layout

3
2
1

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Client
Far East Consortium International Limited

Drawing Title
Topographical Survey of Land at:
Collyhurst Survey Area 2
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Sheet 2 of 3

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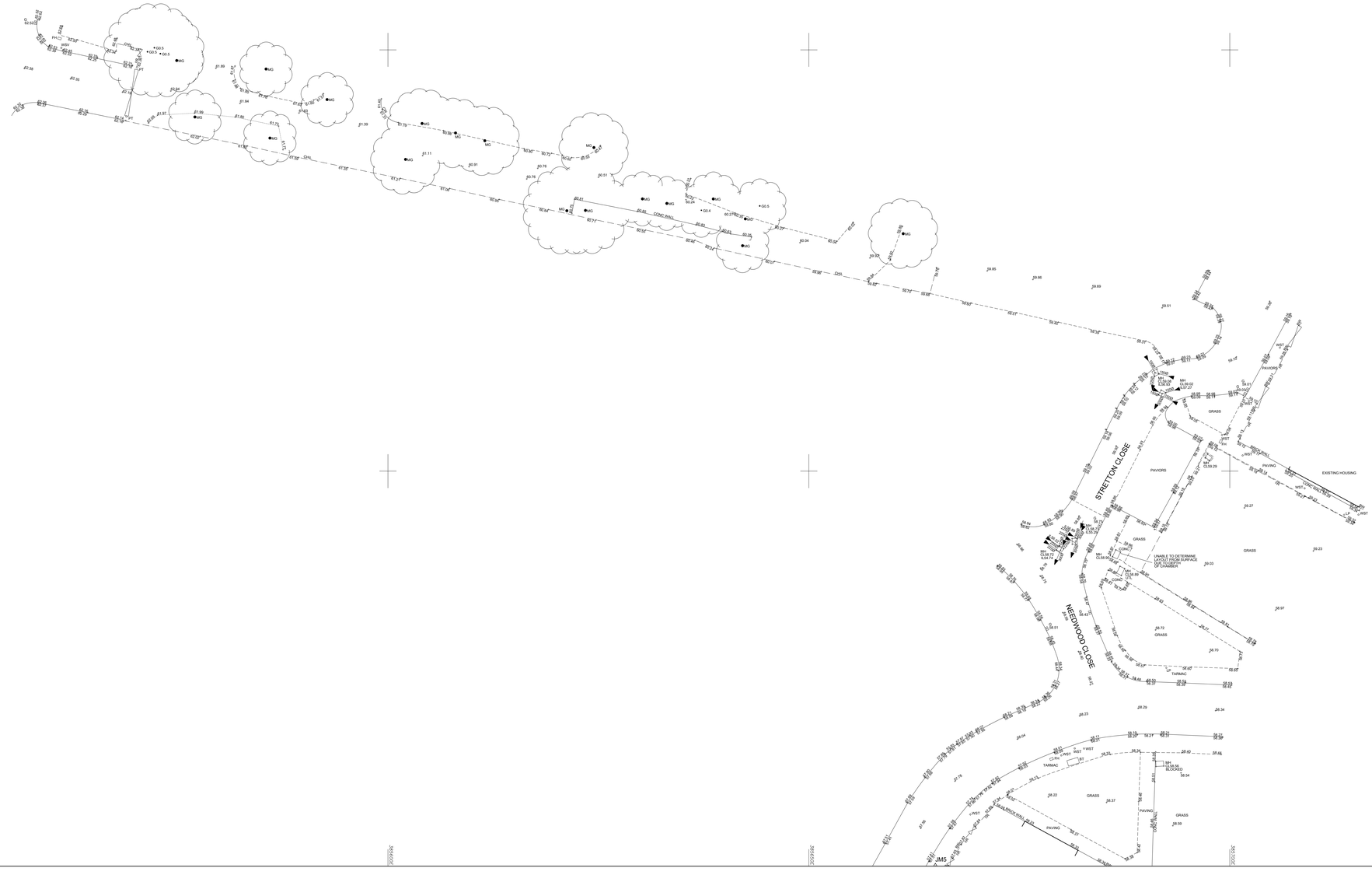

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WM.....Water Meter
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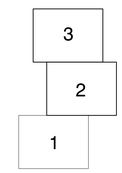
Sheet Layout



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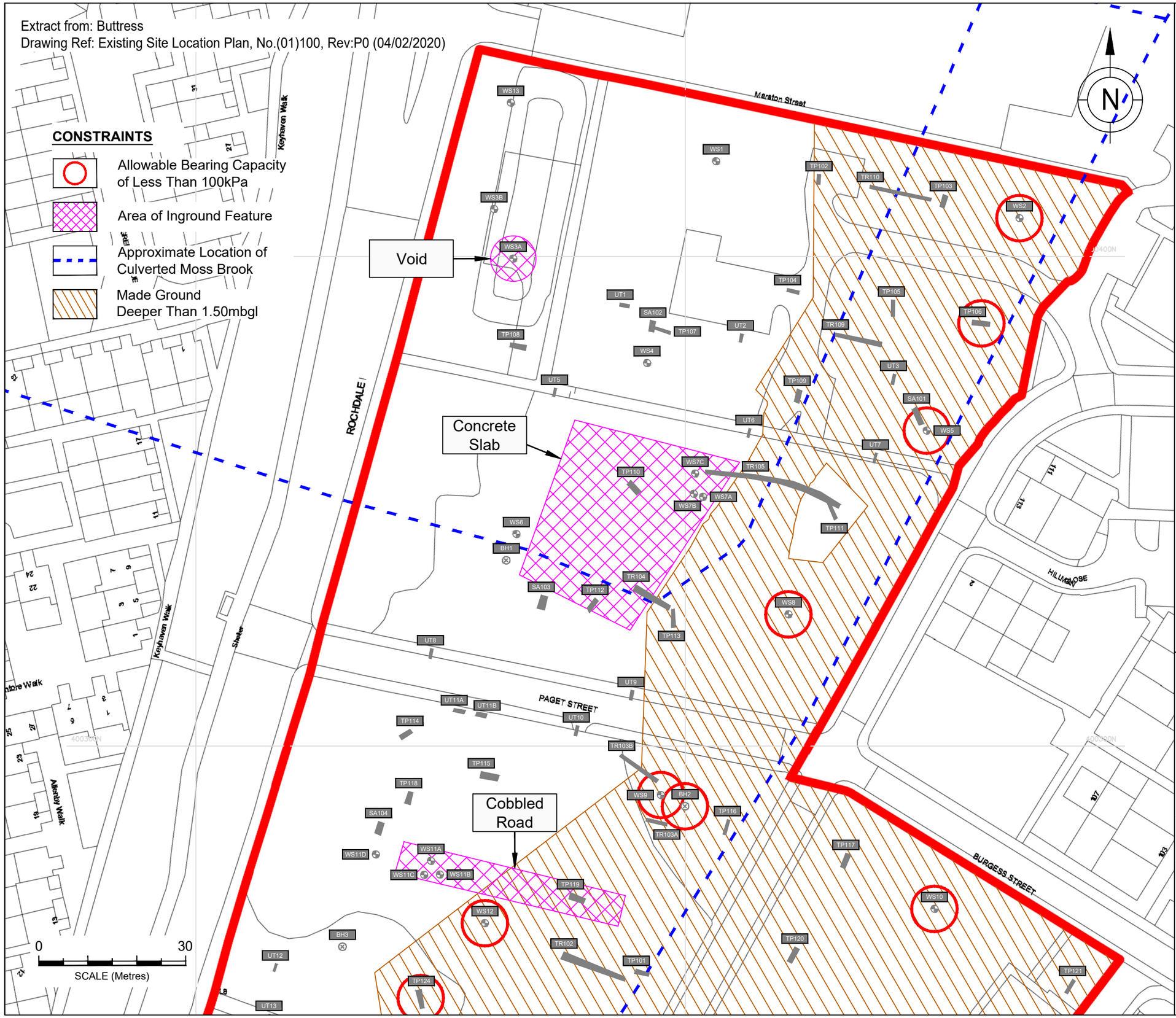
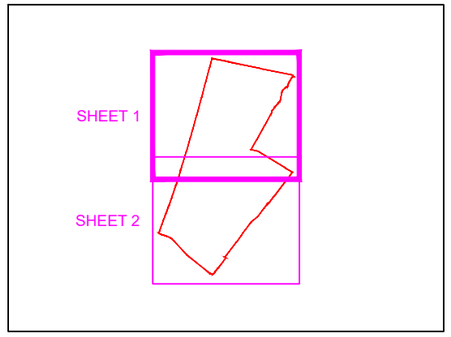
Client	Far East Consortium International Limited
Drawing Title	Topographical Survey of Land at: Collyhurst Survey Area 2 Manchester Sheet 3 of 3
Scale(s) 1:200	Surveyor JM
Date Mar 20	Drawn OKS
Job Number 20C045	Checked TP
Sheet Size & Drg Number & Revision	A0 20C045/003



KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)



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LK CONSULT LIMITED

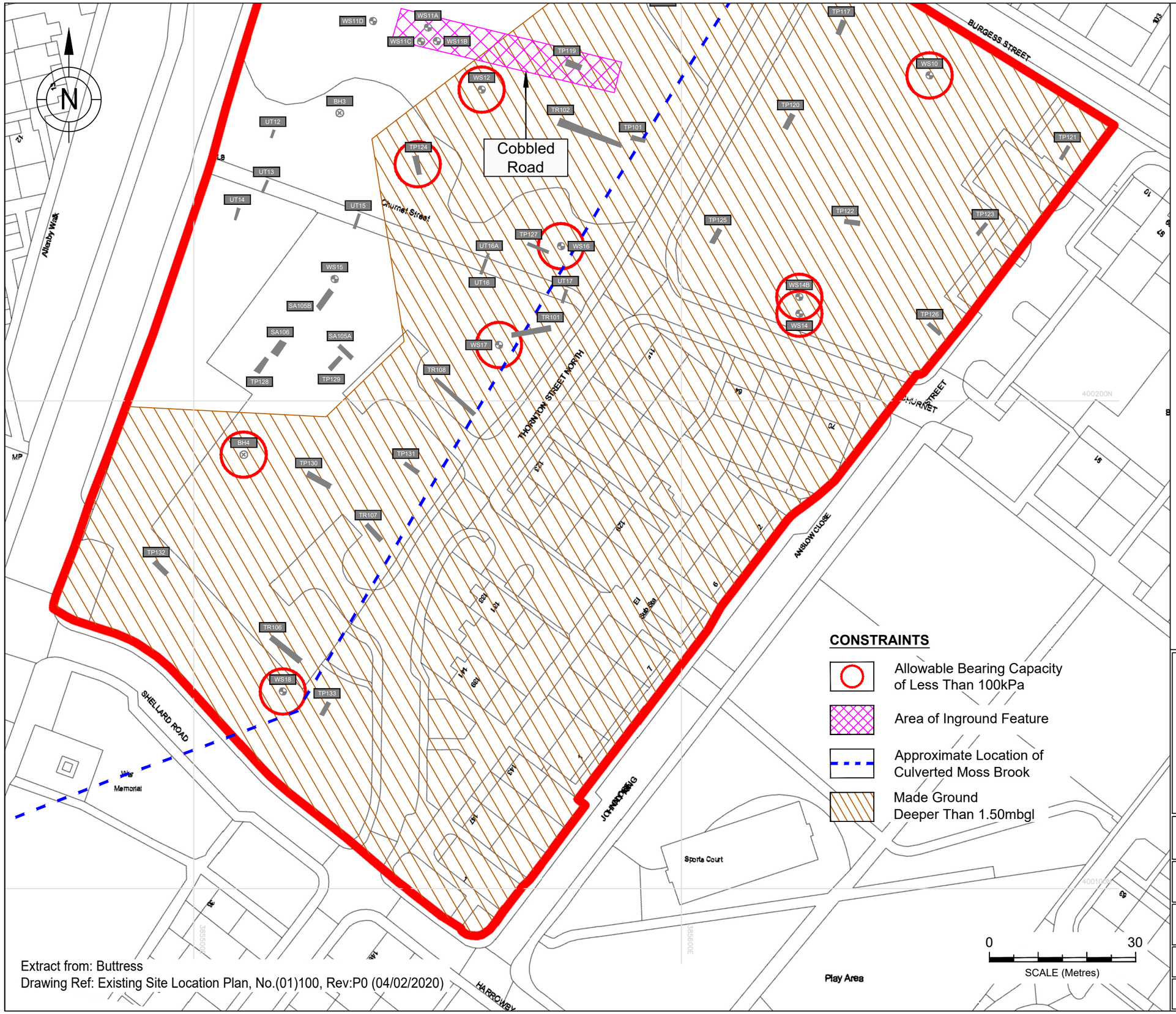
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Geotechnical Constraints Plan, Current Mapping (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar		

Drawn By:	Checked By:	Drawn:
AC	PW	Aug 2020



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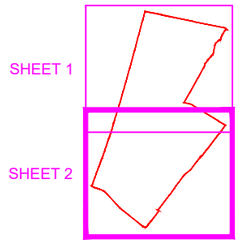

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CONSTRAINTS

- Allowable Bearing Capacity of Less Than 100kPa
- Area of Inground Feature
- Approximate Location of Culverted Moss Brook
- Made Ground Deeper Than 1.50mbgl

0 30

SCALE (Metres)

Extract from: Buttress
Drawing Ref: Existing Site Location Plan, No.(01)100, Rev:P0 (04/02/2020)

LK CONSULT LIMITED

Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Geotechnical Constraints Plan, Current Mapping (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar		

Drawn By:	Checked By:	Drawn:
AC	PW	Aug 2020

Extract from: Ordnance Survey
Drawing Ref: 1st Edition Geological Mapping, Sheet 104 (1848)

CONSTRAINTS

- Allowable Bearing Capacity of Less Than 100kPa
- Area of Inground Feature
- Approximate Location of Culverted Moss Brook
- Made Ground Deeper Than 1.50mbgl

Void

Concrete Slab

Cobbled Road

WS13 WS1 WS3B WS3A WS2 TP102 TR110 TP103 TP104 TP105 TP106 TR109 UT1 SA102 TP107 UT2 TP108 WS4 UT3 UT5 TP109 SA101 WS5 UT6 UT7 WS7C TP110 TR105 WS7A WS7B WS6 BH1 TP111 TR104 SA103 TP112 WS8 TP113 UT8 UT9 UT11A UT11B TP114 UT10 TR103B TP115 TP118 WS9 BH2 TP116 SA104 TR103A TP117 WS11D WS11A WS11C WS11B TP119 WS10 WS12 BH3 TR102 TP120 UT12 TP101 TP121 TP124 UT13

0 30
SCALE (Metres)

N

KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
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SHEET 1
SHEET 2

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LK CONSULT LIMITED

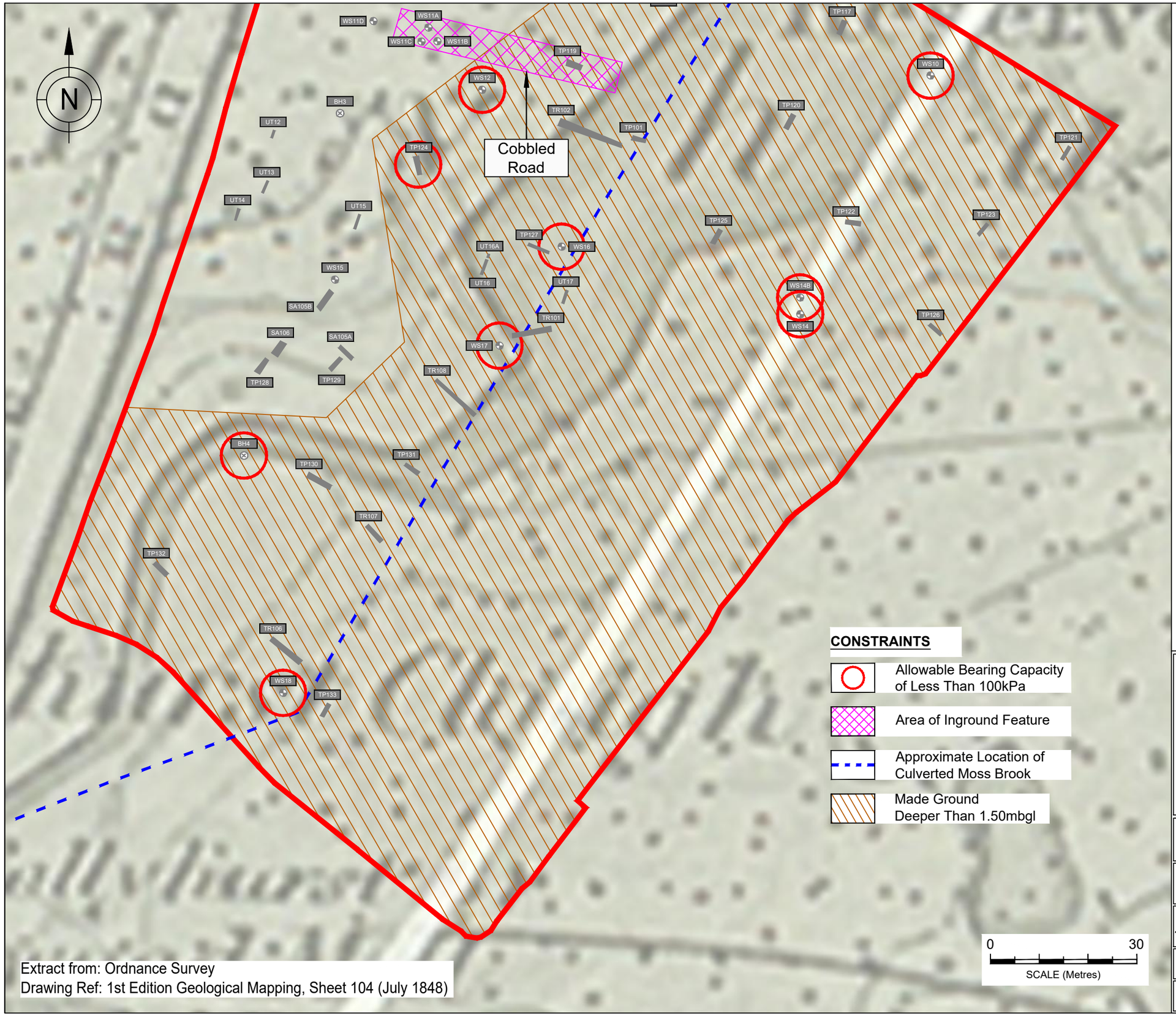
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Geotechnical Constraints Plan, 1st Edition Geological Mapping (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar		

Drawn By:	Checked By:	Drawn:
AC	PW	Aug 2020



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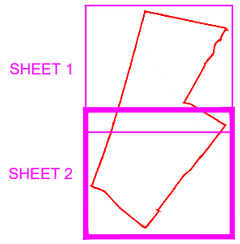
- Window Sample Borehole (WS)



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.

CONSTRAINTS

- Allowable Bearing Capacity of Less Than 100kPa
- Area of Inground Feature
- Approximate Location of Culverted Moss Brook
- Made Ground Deeper Than 1.50mbgl

0 30
SCALE (Metres)

Extract from: Ordnance Survey
Drawing Ref: 1st Edition Geological Mapping, Sheet 104 (July 1848)

LK CONSULT LIMITED

Client: Civic Engineers

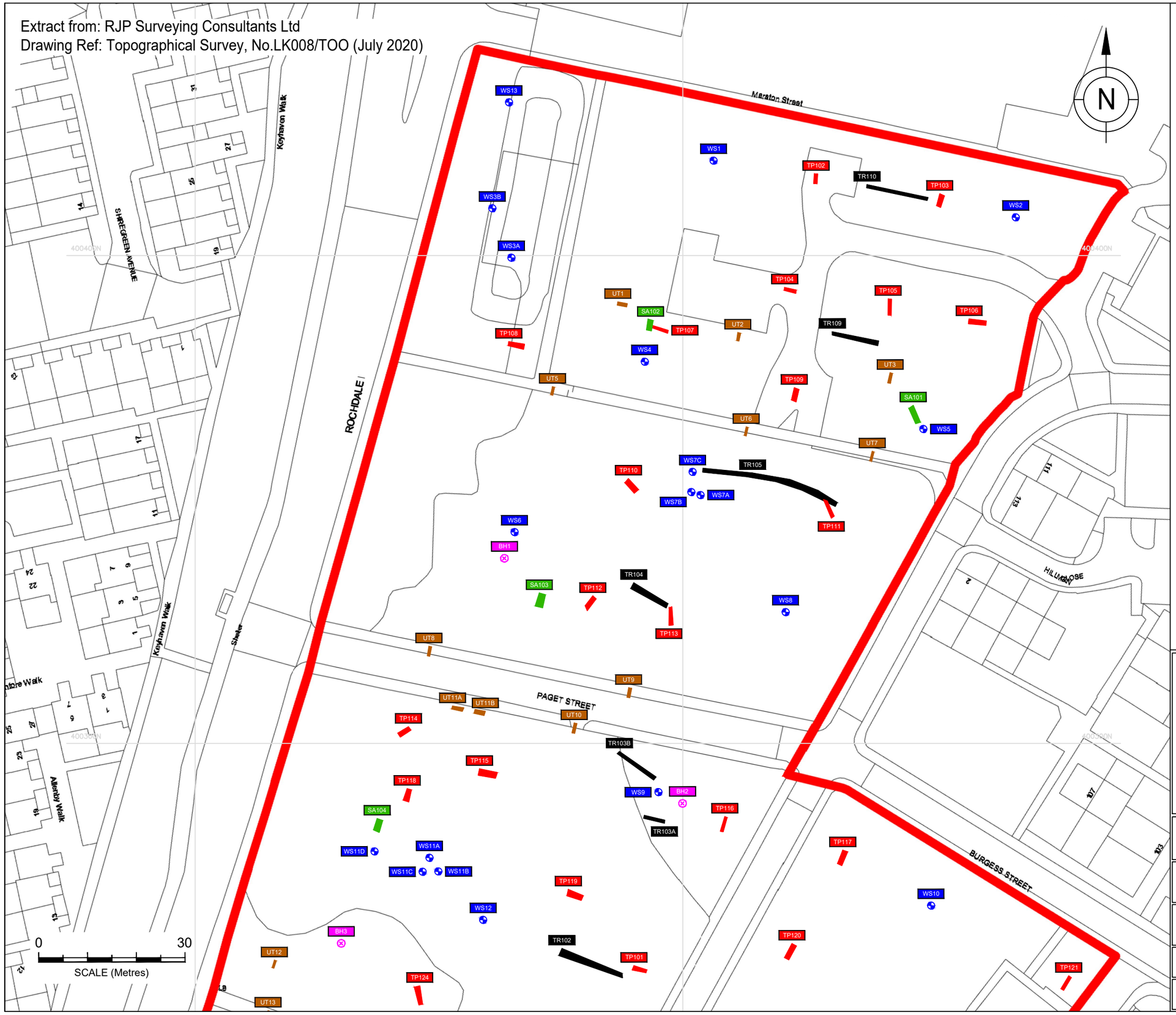
Site: Collyhurst Village, Manchester

Title: Geotechnical Constraints Plan, 1st Edition Geological Mapping (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar		

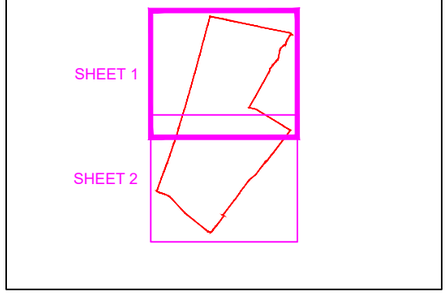
Drawn By:	Checked By:	Drawn:
AC	PW	Aug 2020

Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)



KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)



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LK CONSULT LIMITED

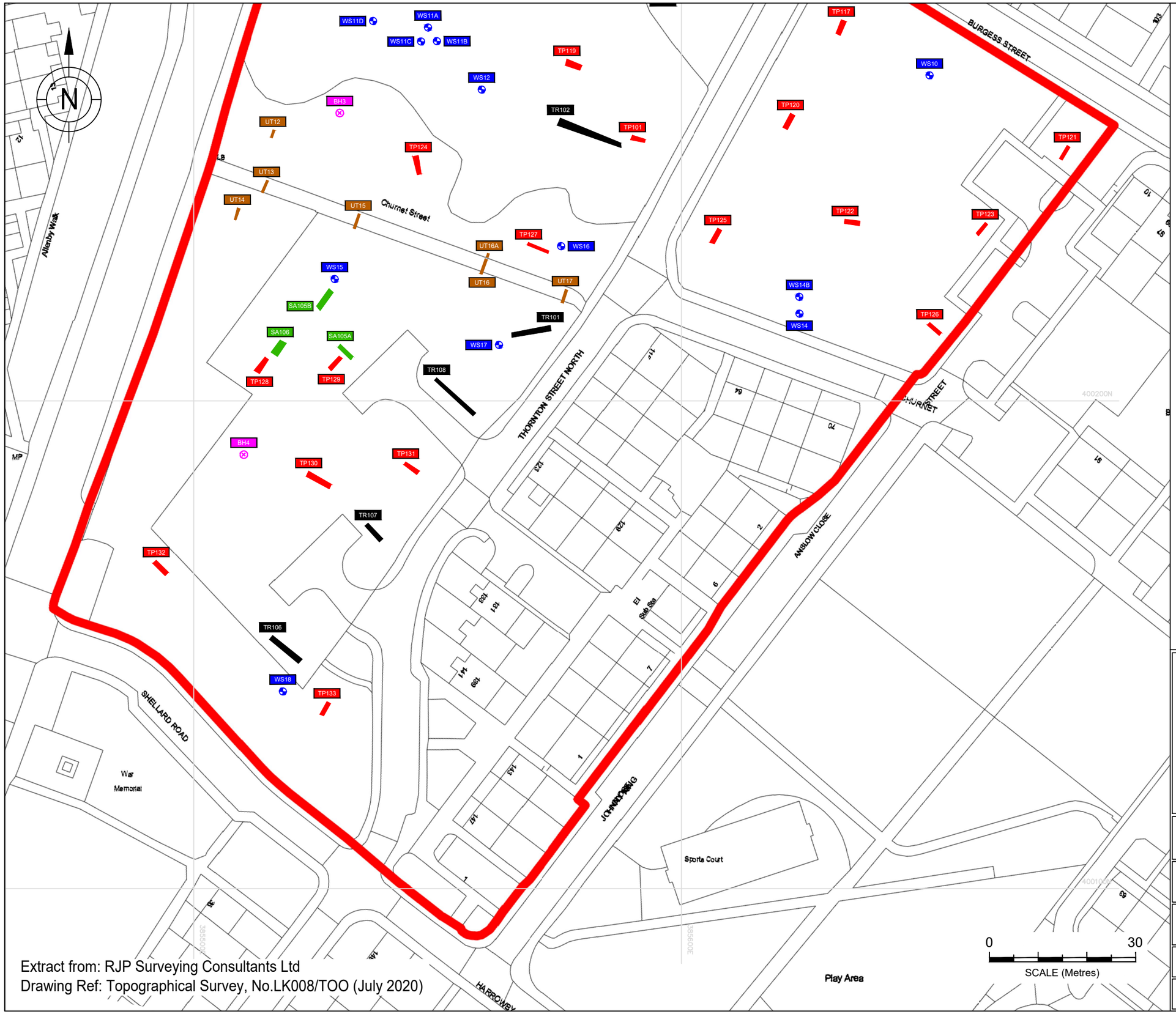
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Site Investigation Location Plan (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	4	

Drawn By:	Checked By:	Drawn:
AC	HM	Aug 2020



Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)

KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
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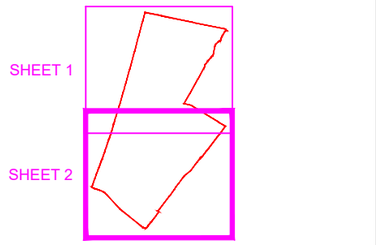

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LK CONSULT LIMITED

Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Site Investigation Location Plan (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	4	

Drawn By:	Checked By:	Drawn:
AC	HM	Aug 2020

COLLYHURST VILLAGE
MANCHESTER

PHASE 2
ENVIRONMENTAL INVESTIGATION, RISK ASSESSMENT AND REMEDIATION STRATEGY

Job Number: LKC 20 1120
Date: October 2020
Client: Far East Consortium International

INCREASING LAND VALUE

LK GROUP

LK Consult Document Verification			
Site Address	Collyhurst Village, off Thornton Street North, Manchester, M40 7SU		
Report Title	Phase 2 Environmental Investigation, Risk Assessment and Remediation Strategy		
Job Number	LKC 20 1120	**Document Ref.**	CL-602-LKC 20 1120-02
Date Issued	October 2020	**Report Version**	R0
Prepared By	Hannah Moss	**Signature**	
Prepared By	Chris Hughes	**Signature**	
Reviewed By	Dr Paul Quimby	**Signature**	

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**

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EXECUTIVE SUMMARY

Site Details

Site Location:	East of Rochdale Road in the Collyhurst area of Manchester. Centred at approximate National Grid Reference 385570E 400290N.
Site Area:	4.26Ha
Current Land Use:	Plot D - Far North Currently fenced off area accessed off Needwood Close. Tarmac roads still present but all buildings have been demolished. Plot C - North This parcel of land is vegetated with mature trees along the boundary with Rochdale Road in the west and several mature trees across the eastern half of this Plot. There is a noticeable area in the centre of this Plot which is mainly grassed and has no large trees. This Plot is separated from Plot D to the north by a footpath. Plot B - Centre Heavily vegetated area separated from Plot C to the north by Paget Street and from the Plot A to the south of the site by a footpath. Plot A - South Currently fenced off area accessed off Thornton Street North. Tarmac roads still present but all buildings have been demolished. Public Open Space Area to the east of Thornton Street North currently maintained grassland. SE Corner Currently occupied by residential properties.
Proposed Development:	Residential end use including townhouses and duplex apartments.
Purpose of Report:	Contamination Assessment.

Preliminary Risk Assessment

PRA Details:	Undertaken by LKC in August 2020. Ref: LKC 20 1120.
History:	Reservoir in E between 1848-1850. Watercourse between 1848-1850. Residential streets and dwellings between 1891-2006. Orchard between 1893-1894 mapping. Various non-residential buildings between 1949-2006. Mound between 1989-2006. Surrounding area – several potentially infilled features. Commercial / industrial properties.
Geology / Hydrogeology:	Glacial Till (Secondary Undifferentiated Aquifer) over Pennine Middle Coal Measures, Pennine Lower Coal Measures and Worsley Delf Rock (Secondary A Aquifer).
Mining:	Southern perimeter of site within DHRA relating to 'Probable Shallow Coal Mine Workings'.
Relevant Environmental Setting:	Culverted Moston Brook onsite. No pollution incidents recorded on site, nearest 141m NE (Category 3, 1996). Nearest surface abstraction 303m NW (license revoked). Nearest groundwater abstraction 474m W. Not within Source Protection Zone.
Preliminary Conceptual Model: PL=Pollutant Linkage	PL1 Direct Contact (Human Health): Moderate Risk (asbestos, metals, PAHs, PCBs), Moderate / **Low** Risk (hydrocarbons, organic / inorganic contaminants), Low Risk (Pesticides, detergents). PL2 Inhalation of Vapours: Moderate / **Low** Risk (volatile contaminants). PL3 Gas: Moderate Risk (hazardous gas), **Moderate** / Low (Ground Gas) PL4 Controlled waters: **Moderate** / Low Risk (mobile contaminants). PL5 Sulphate Attack: **Moderate** / Low Risk (sulphate). PL6 Water Pipelines: **Moderate** / Low Risk (organic contaminants). PL7 Phytotoxic: Low Risk (metals).
Recommendations:	Site Investigation was recommended to further assess all the above pollutant linkages.

Ground Investigation Work Undertaken

Date of Investigation:	13th to 23rd July 2020
Intrusive Investigation Work Undertaken:	10no. window sample boreholes (WS101-WS106). 33no. mechanically excavated trial pits (TP101-TP107). 10no. mechanically excavated trial trenches (TR101-TR110). 18no. Utility Trenches using Vacuum Excavator (UT1-UT18). 6no. Soakaway Tests (SA101-SA106). 4no. Cable Percussion boreholes (BH1-BH4). 5no. Dynamic Cone Penetration Tests (DCPSA1-DCPSA5). 4no. Rotary boreholes (RBH1-RBH4).
Monitoring Wells:	Installed in WS1-WS6, WS8-WS18, BH1-BH4.
Soil Sampling:	39no. samples tested for metals, speciated PAHs, pH, sulphate, asbestos and SOM. 15no. samples tested for metals, speciated PAHs, cyanide, pH, sulphate, asbestos, phenol, TPHCWG, BTEX, VOCs, SVOCs, PCBs and SOM. 1no. samples tested for TPHCWG, BTEX, MTBE and SOM. 2no. samples tested for asbestos identification. 9no. samples tested for Waste Acceptance Criteria.
Groundwater Sampling:	6no groundwater samples tested for metals, speciated PAHs, cyanide, pH, sulphate, hardness, phenol, TPHCWG, BTEX. 3no. soil leaching tests for TPHCWG, BTEX, MTBE and hardness
Monitoring:	6no. gas monitoring visits over 3 months.
Insitu and Laboratory Geotechnical Testing:	In-situ testing (SPTs, hand shear vanes, pocket penetrometers DCPs, Soakaway tests). Laboratory Testing: Soil (Moisture Content, Particle Size Distributions, Liquid and Plastic Limits, Determination of Density, Oedometer, Single Stage Undrained Triaxial), Rock (Unconfined Compressive Strength and Point Loads).

Contamination Risk Assessment

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

Pollutant Linkage		Risk	Recommendations
1	Contaminants posing a risk to site users future residents, site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	**Moderate** **Residential with private gardens**	– Moderate risk as elevated metals (arsenic and lead) and PAHs identified in the made ground which could come into contact with site users in gardens / soft landscaping areas. – **Recommendation:** Remediation required to include an environmental cover system in gardens where residential houses are present.
		Moderate / **Low** **Residential with private gardens**	– Low risk as limited heavy end hydrocarbons encountered and related to discrete cobble with bitumen coating and not representative of made ground matric. – ACM identified at Limits of Detection (LOD) as chrysotile in one location within landscaped areas. Visible pieces of ACM identified in a small number of locations. -Low risk assumed. – **Recommendation:** Removal of the mound. Hand picking of visible ACM pieces. Environmental cover system as above for metals and PAHs will be sufficient in residential gardens.
1	Contaminants posing a risk to site users future residents, site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	**Low** **Apartment Block, small verges (no gardens) and POS**	– Low risk as No elevations identified within proposed apartment block areas. – Localised elevations in POS area unlikely to pose a risk based on limited end use anticipated and nature of ground conditions. – **Recommendation:** Nominal 150mm topsoil layer in shared soft landscaping within apartment blocks and small verges. No specific remediation required in the POS area.
		Moderate **SE occupied site**	– Moderate risk for heavy metals, PAHs and localised PCBs. Risk cannot be confirmed at this stage until investigation has taken place in southeast of site currently covered by occupied houses. – **Recommendation**: Intrusive investigation required once area has been demolished.
2	Volatile contaminants posing a risk to site users future site users via the inhalation of vapours.	**Low**	– No significantly elevated volatile contamination identified. **Recommendations:** No remediation required.
3	Gas posing a risk to buildings and site users buildings and site users via the migration of gas into building causing explosion and asphyxiation.	**Moderate** **East of Plot B**	– Elevated carbon dioxide identified (max. 16%v/v) in area of former infilled reservoir, but at negligible flow rates. Sufficient evidence to uprate the east of Plot B to CS2 from CS1. – **Recommendation:** Gas protection measures in line with CS2 required in the east of Plot B (see Figure 6). No gas protection measures in remainder of site.
		Moderate / **Low** **Remainder of occupied site**	– Remainder of site is within CS1 scenario and no evidence (e.g significant elevated gas concentrations or flow rates) to uprate the rest of the site to CS2. – Low risk assumed based on gas concentrations and flow rates being low to very low across most of the site. – **Recommendation:** No gas protection measures required
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	– Only elevated manganese recorded in groundwater samples when compared to relevant assessment criteria. – Very localised leachable hydrocarbon fractions relating to tarmacadam fragments in made ground. Not considered to pose a significant risk to wider groundwater. – **Recommendation**: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	-Assessed in geotechnical report. Elevated sulphate sporadic across the site. **-Recommendation**: Worst case sulphate resistant concrete to DC-2 AC-1s required.	
6	Organic contaminants posing a risk to water pipes.	**Moderate**	– Organic contamination identified at potable pipe depth of 0.75-1.35mbgl. – **Recommendations:** UU risk assessment to be completed. The site will likely require barrier piping.
7	Phytotoxic metals posing a risk to flora via root uptake.	**Very Low**	– Elevated contaminants identified, but no vegetative stress. – **Recommendations:** No specific remediation required, but nominal clean cover will be sufficient.

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	Post-demolition Trial Pitting in SE This is recommended to confirm ground conditions below the current buildings and allow delineation of areas of concern. This should allow a more targeted remediation strategy to be completed. This work will also provide more geotechnical information for foundation design.	N/A (Investigation Report will be provided with an updated Remediation Strategy).
		The bunded material will need further testing before disposal in relation to LOD ACM identified in one sample (assumed disposal as site is to be reduced in levels). Appropriate asbestos management will be required by the Remediation Contractor before work commences.	Report results and provide disposal tickets as part of wider earthwork removal offsite.
	ALL	Earthworks Inspections / Unexpected Contamination 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. Material should be stockpiled and quarantined on visqueen and covered.	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.
On / Post--Construction	3	Gas Protection Measures required in Localised Areas (East of Plot B – see Figure 6) In line with CS2 as per UK guidance[1,2]. This is likely to / should include: • Passive subfloor or active subfloor ventilation system. • Methane and carbon dioxide resistant membrane installed as per manufacturer's instructions. • Ventilation of confined spaces within the building. • Well-constructed reinforced suspended, raft or cast in situ ground slab. • Minimum penetration of ground slab by services. • All joints and penetrations to be sealed. Depending on the type of building and foundation design the protection measures can vary. The gas protection measures will be detailed and approved with the Local Authority once the foundation design has been confirmed.	Supply and review of foundation designs. Photographic evidence of sub-floor void, ventilation and suitably sealed gas membrane. Validation of gas protection measures should be in line with CIRIA 735[3]

[1] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665
[2] BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for new buildings." BS8485:2015.
[3] CIRIA (2014). "Good Practice on the Testing and Verification of Protection Systems for Building Against Hazardous Ground Gas". CIRIA C735.

Phase	PL	Remediation Requirements	Validation Requirements
On / Post--Construction	1 and 7	Environmental Cover System (Residential with garden areas only- see Figure 6) As made ground is relatively deep, it is unlikely to be viable to remove the contaminated soils. Therefore, an environmental cover system is recommended. The environmental cover system should be as follows: **Private Back Gardens:** **600mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 500mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 600mm comprising clean inert fill and sufficient topsoil for a growing medium. **Private Front Gardens:** **450mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 350mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 300mm comprising clean inert fill and sufficient topsoil for a growing medium. The subsoil layer can be replaced by additional topsoil. **Landscaping Around Apartment Blocks, small verges around duplex buildings and POS.** Topsoil Growing Medium Although no contamination were at levels or in a matrix that could significantly harm key receptors in areas of landscaping around the apartment blocks, POS and small verges around the duplex buildings, the existing made ground is not expected to be a suitable growing medium given the nature of the soil and the undesirable material present (ash and brick). A minimal topsoil cover of approximately 150mm is recommended	Measuring depth of environmental cover system using a staff and providing photographic evidence. Photographic evidence of the granular physical break or geotextile layer will also be collected. Chemical validation of imported soils: See Table 8-2.
	5	Sulphate Resistant Concrete Sulphate Resistant Concrete in line with DS-2 AC-1s may be required in localised areas.	N/A
	6	Potable Water Pipes It is recommended that a Water Pipeline Assessment is undertaken once the location and depth of potable water pipes are known. It is likely that barrier pipe will be required.	Delivery Notes of Pipe Material or Photographs of the Installed Pipe.

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

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.

Other Considerations
Grubbing Out of In-Ground Structures It is recommended that in-ground structures are grubbed out as part of the groundworks
Re-use of site won material (LKC understand site levels will be reduced so may not be required) To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used): 5,000 tonnes (*c.* 2,500m^3) treatment of crushed concrete / stone. 1,000 tonnes (*c.* 500^3) use of non-hazardous soil 5,000 tonnes (*c.* 2,500m^3) use of clays, sand, gravel, brick, concrete, stone etc. 50,000 tonnes (*c.* 25,000m^3) use of bitumous material to be used in roadways. A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered **before** material movement starts onsite. If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'. For all the above material will need to be tested at the rate and analytical suites presented in Table 8-3.
Asbestos Management Plan Due to the presence of asbestos containing material (1/54 in soil and 3no. visible pieces), it is recommended that additional precautions are taken during site clearance, earthworks and construction in the area of concern. The presence of asbestos in the made ground at the site presents a potential risk of generation of airborne fibres if this material is disturbed, such as for excavations to construct new foundations. This risk can be managed by careful procedures and site monitoring to reduce the risk of airborne fibres, such as wetting techniques and it is recommended that an appropriate 'Asbestos Management Strategy' is developed and adopted for all intrusive ground works which disturb the made ground in the area of concern. This should be carried out in line with CIRIA C733. This may include asbestos awareness training for all site staff, provision of suitable personal and respiratory protective equipment and air monitoring. With regards to cement bound asbestos, this can be handpicked, doubled bagged and disposed of appropriately to a licenced landfill. Guidance on removing asbestos cement is described in HSE (2012). If ACM is identified in soil arisings then soil should be placed directly into covered skips and disposed of at a suitable licenced landfill, after further testing to quantify the extent of asbestos contamination of the soils. It should be considered that blue asbestos is notifiable (if present) and must be removed by a licenced contractor. Given that visible pieces of ACM were identified in TP104, TP18 and TP112, it is recommended that hand picking of the ACM is undertaken in these areas. The ACM should be doubled bagged and disposed of accordingly. The JIWG model (presented in Appendix J) identified this work to be classed as **Non-Licensed Work (basic RPE and localised dust suppression)** for the identified pieces of chrysotile cement and board. The soil ACM at LOD was considered a negligible risk, where CAR did not apply.
Health and Safety Considerations In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance[4]) should be adopted by all workers involved with site enabling and construction works.
Piling in Contaminated Land It is understood that the building will be piled. This may provide a preferential pathway for contaminants to the Secondary B Aquifer. Once the method of piling has been determined, good practice for the drilling of piles on contaminated sites should be adhered to, such as guidance provided by the Environment Agency.
Asbestos Survey (areas of occupied residential housing) A Pre-Demolition and Major Refurbishment Asbestos Survey should be undertaken, and any ACMs removed and properly disposed of, prior to the demolition of the existing buildings, by a suitably qualified professional.

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

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1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Civic Engineers Ltd to carry out a Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy for Collyhurst Village. The investigation was undertaken in support of a future planning application to develop the site for residential use.

With regards to contamination, the following work has previously been undertaken:

- Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120B, dated 4th February 2020).
- Updated Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120, dated August 2020). To incorporate the extended planning boundary.

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 geotechnical assessment and desk based Coal Mining Risk Assessment (CMRA) will be reported under separate cover and will not be discussed in this report.

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

The aims of this report are also to establish the feasibility of developing this site, to demonstrate to the Local Planning Authority that in accordance with the National Planning Policy Framework (NPPF)[5] the site may be developed for a residential end use and that appropriate site investigation and risk assessment works are in place to allow conditional approval of any future planning application.

[5] DCL (2019). "National Planning Policy Framework." Department of Communities and Local Government.

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	East of Rochdale Road in the Collyhurst area of Manchester. Centred at approximate National Grid Reference 385570E 400290N.
Area	4.26Ha
Topography	60 metres Above Ordnance Datum (AOD). Site is approximately level.
Land Use	Plot D - Far North Currently fenced off area accessed off Needwood Close. Tarmac roads still present but all buildings have been demolished. Plot C - North This parcel of land is vegetated with mature trees along the boundary with Rochdale Road in the west and several mature trees across the eastern half of this Plot. There is a noticeable area in the centre of this Plot which is mainly grassed and has no large trees. This Plot is separated from Plot D to the north by a footpath. Plot B - Centre Heavily vegetated area separated from Plot C to the north by Paget Street and from the Plot A to the south of the site by a footpath. Plot A - South Currently fenced off area accessed off Thornton Street North. Tarmac roads still present but all buildings have been demolished. Public Open Space Area to the east of Thornton Street North currently maintained grassland. SE Corner Currently occupied by residential properties.
Proposed Development	Residential end use including townhouses and duplex apartments.

Table 1-1 : Summary of site details.

2 Previous Work

2.1 Summary of Existing Information

An updated PRA report (Ref: LK 20 1120, dated August 2020) has previously been undertaken by LKC, given the site boundary had changed since completing the original PRA (Ref: LKC 20 1120B, dated 4th February 2020). The updated report is summarised in Section 2.2-2.6.

2.2 Site History

The site history is summarised in Table 2-1.

Site Features	Location	Map Dates Present	Comments
Watercourse	N and S	1848-1850	- Present on NE perimeter and S part of site. - Annotated as Moss Brook on 1850 mapping. - No longer present by 1891 mapping. Culvert Street named on site would indicate watercourse culverted.
Reservoir	E	1848-1850	- Partially located on site. - No longer present by 1891 mapping.
Residential streets and dwellings	Majority of site	1891-1966	- Hall's Crescent, Oswald's Grove, Churnet Street, Paget Street, Stretton Street, Fildes Street, Alexandria Street, Needwood Street, Knightley Street, Culvert Street, Anslow Street, North Kent Street and Groome Street present on site. - Some clearance of buildings on site by the 1938 mapping. - North Kent Street, Groome Street and Anslow Street no longer present by 1938 mapping. - Burgin Street added to southern part of the site by the 1949 mapping. - An electricity sub station is present on the southern part of the site by the 1949 mapping. - Re-development of houses on the northern part of the site by the 1949 mapping. Erith Walk added to the NE part of the site. - Burgin Street no longer present by 1983 mapping replaced with Thornton Street North and associated new residential dwellings. - New buildings constructed on the eastern part of the site by 1986 mapping (residential dwellings and possible apartment building). - Majority of buildings no longer present by the 1975 mapping. Residential dwellings on the southern part of the site and SE perimeter remain.
Club	NW	1891-1966	- No longer present by the 1975 mapping.
Public open space	S	1891-1938	- No longer present by 1949 mapping.
Orchard	S	1893-1894	- No longer present by 1908 mapping.
Day nursery	Central	1949-1999	- Annotated as 'community centre' by the 1977 mapping. - Annotated as 'Law centre' by the 1986 mapping. - No longer present by 2000 Aerial photography.

Table 2-1: Summary of significant historical features.

Site Features	Location	Map Dates Present	- Comments
Public House	W	1949-1966	- No longer present by 1975 mapping.
Cinema	S	1949-1982	- No longer present by the 1992 mapping.
Cutting	S	1949-1977	- No longer present by 1982 mapping.
Surgery	NW	1962-1966	- No longer present by 1975 mapping.
Overbrook Avenue and associated residential dwellings	S	1962-2006	- No longer present by the 2019 mapping.
White Gate (Home for the Aged)	N	1975-2006	- No longer present by the 2019 mapping.
Welfare centre	E	1977-2006	- No longer annotated by the 1986 mapping. - No longer present by the 2019 mapping.
Needwood Close and associated residential dwellings	N	1986-2006	- No longer present by the 2019 mapping.
Mound	NW	1989-2006	- No longer present by the 2019 mapping.
Surrounding Area Features	**Distance / Location**	**Map Dates Present**	**Comments**
Reservoir	Adj. NE	1848-1850	- No longer present by 1891 mapping.
Pond	60m SE	1848-1850	- No longer present by 1891 mapping.
Pond	110m SE	1848-1850	- No longer present by 1891 mapping.
Mill	100m SW	1848-1975	- No longer present by 1977 mapping.
Quarry	150m W	1848-present	- Annotated as playing field by 1966 mapping.
Pond	150m E	1848-1850	- No longer present by 1891 mapping.
Brick field	Adj. S	1850 only	- No longer present by 1891 mapping.
Burial ground	70m E	1891-1938	- No longer present by 1949 mapping.
Oilcloth manufactory	10m E	1891-1966	- Annotated as mineral water manufactory by 1908 mapping. - Annotated as 'Dixie Mills (cotton waste)' by the 1949 mapping. - Split into two works and a warehouse by the 1962 mapping. - No longer present by 1975 mapping.
Oilcloth manufactory	10m SE	1891-1966	- Annotated as tin stamping works by 1908 mapping. - No longer present by 1975 mapping.
Timber yard	20m SE	1891-1938	- Annotated as 'Climax works (window blind furniture)' by 1908 mapping. - No longer present by the 1949 mapping.
Tramway	Adj. W	1891-1932	- No longer present by 1938 mapping.
Railway tunnel	60m N	1891-present	
Cutting	120m NW	1891-1894	- No longer present by 1908 mapping.
Warehouse	50m SW	1949-1978	- No longer present by the 1977 mapping.
Works	30m W	1962-1966	- No longer present by 1975 mapping.
Warehouse	45m N	1962-1966	- No longer present by 1975 mapping.
Scrap metal yard	45m N	1977-1986	- Annotated as depot from 1983 mapping. - No longer annotated by the 1989 mapping.

Table 2-1(continued): Summary of significant historical features.

2.3 Environmental Setting

The environmental setting is summarised in Table 2-2.

Categories			Details
Geology	Artificial		- None recorded on site on the database. - Worked ground (void) is located approximately 50m SSW.
	Superficial		- Till.
	Bedrock		- Northern and central part of the site: Pennine Middle Coal Measures (mudstone, siltstone and sandstone). - South of central part of the site: Pennine Upper Coal Measures (mudstone, siltstone and sandstone). - Southern part of the site to southern site boundary: Worsley Delf Rock (sandstone).
	BGS Logs		- BH Ref: SD80SE44, 49m NW: made ground to 0.15m, stiff clay to 5.33m, sand to 5.94m, clay with boulders to 10.13m, mudstone to 13.41m, shale to 15.01m, coal to 15.31m, coal shale to 15.62m, fireclay to 16.6m, mudstone to 20.2m, shale to 22.25m, mudstone to 22.7m, shale to >26.36m. - BH Ref: SD80SE43, 53m NW: made ground to 0.46m, clay to 14.63m, shale to 16.3m, fireclay to 17.22m, rock to >26.36m.
Hydro-geology	Aquifer Designation	- Superficial	- Secondary Aquifer - Undifferentiated.
		- Bedrock	- Secondary A Aquifer.
	Source Protection Zone (SPZ)		- Site is not within an SPZ.
	Groundwater Abstractions		- None within 250m. - Nearest 474m W held by Packaging Products Ltd for general cooling purposes.
Hydrology	Nearest Surface Water		- Culverted Moston Brook located on site. - River Irk 230m W, flowing SSW.
	Water Quality Data		- 15m N, Moston Brook – River Quality F.
	Flooding		- No risk from rivers or sea. - Potential for groundwater flooding of property situated below ground level and potential for groundwater flooding to occur at surface identified.
	Surface Water Abstractions		- None within 250m. - Nearest 303m NW for abstraction from the River Irk for Manufacturing. The licence has been revoked.
	Discharge Consents		- 23 within 250m: nearest located on site held by United Utilities Water Ltd for final / treated sewage effluent discharge to Moston Brook. The authorisation was revoked in 1993.
	Pollution Incidents		- 2 within 250m: nearest 141m NE involving the release of crude sewage to Moston Brook from a private system due to a blocked sewer in 1996. The incident was classified as a Category 3 – Minor Incident.
Minerals & Mining	Coal Report[4]		- Site is located within reporting area.
	Coal Mining Development High Risk Area (DHRA)		- The southern perimeter of the site is located within a Development High Risk Area associated with 'probable past shallow coal workings'.
	Surface Extractions[1]		- 1 within 250m: located 218m SW for the opencast abstraction of sandstone. The site has ceased operation.
	Cheshire Brine Compensation District		- N/A.

Table 2-2: Summary of the environmental setting.

Categories		Details
Ground Stability (onsite)	Collapsible Ground	- Very low hazard.
	Compressible Ground	- No hazard.
	Ground Dissolution	- No hazard.
	Landslide	- Very low hazard.
	Running Sand	- Very low hazard.
	Shrinking / Swelling Clay	- Very low hazard.
Landfill Sites	Known / Registered	- 1 within 250m: - 52m SW historical landfill 'Land at Fitzgeorge Street'. No further details are given.
	Potential	- 11 within 250m: - Parts of a watercourse and reservoir on site, potentially infilled by 1891 mapping. - Cutting on S of site, potentially infilled by 1982 mapping. - Reservoir adjacent E, potentially infilled by 1891 mapping. - 3 ponds 120-170m, potentially infilled by 1891 mapping. - Quarry 150m W, potentially infilled by 1966 mapping. - Brickfield adjacent S, potential infilled by 1891 mapping. - Burial ground 70m E, no longer present by 1949 mapping. - Cutting 120m NW, potentially infilled by 1908 mapping.
Radon		- Probability of <1% of homes above Action Level. No further action required.
Designated Sites		- Site forms part of Nitrate Vulnerable Zone.
Contemporary Trade Directory		- 8 within 100m: Nearest onsite for carpet, curtain and upholstery cleaners. Listed as inactive.
Fuel Station Entries		- None within 100m.
Unexploded Bomb Risk (UXO)		- Moderate. - A Pre-Desk Study Assessment has been undertaken by Zetica which has concluded that, while prudent, a detailed desk study is not considered necessary.

Table 2-2: Summary of the environmental setting.

2.4 Site Reconnaissance

A site reconnaissance was carried out on 22nd January and 13th July 2020. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions.

During the reconnaissance it was noted that the site has been split into sections and these are discussed as such below.

Northern Area

- The northern part of the site sits between two footpaths, the north named Marston Street.
- Access is from Thornton Street North via a double gate approximately 5m wide. An earth bund is present behind the gate to prevent vehicular access. The area is secure and enclosed by a fence but there is evidence of people breaking the fence and entering.
- The roadway and pavement of Needwood Close is still present on site. Lamp posts were still present along the roadway. The remaining ground conditions encountered comprise made ground (brick rubble, plastics, metals some ash and clinker and soil), vegetation and a flagstone path.
- There are two areas of block paving adjacent to the road in the centre.

- A hand auger in this area comprised sandy gravel with frequent brick fragments and whole bricks, metals, plastics, rare ash and clinker to >0.4mbgl.
- This area of the site was undulating, and a lot of the paving is cracked. There is also an area to the southeast that appears approximately 1.5m lower than the rest of the site.
- The mound on the western part of this site was observed to be approximately 2m high. The mound is vegetated and contains a number of trees which appear to be slipping.
- The footpath on the southern boundary contains manhole covers and fly-tipped domestic waste material.

North of Paget Street

- This area is open access via a gap in the fencing from the footpath between Thornton Street North and Rochdale Road.
- The site is predominately uneven grassland, with evidence of vehicles being driven across it.
- Fly tipping of domestic waste was also observed along the northern, eastern and southern borders.
- There is a small mound of dense vegetation within the southeast of the area.

South of Paget Street

- This area is open access, bound by Padget Street and another footpath on the south. Majority grassland, there are also some mature and young trees that show signs of slipping, particularly near Thornton Road North and within the northeast area.
- The grass in the centre appears to have been cut recently.
- Fly tipping of domestic waste also observed along the east edge of the boundary.
- An area of the site within the trees in the eastern part of this area is being used for storing scrap metal.
- A public footpath is present to the south of this section, leading from Rochdale Road to Thornton Street North.
- Thornton Road North along the eastern boundary has manhole covers in the northeast and southeast corners.

Southern Area

- Similar to the northern area, the area is secure, and access is via a double gate from Thornton Road North. Earth bunds are present behind the gate to prevent vehicular access.
- Roadways and pavement for former Overbrook Avenue and Piccard Close are still present, with manhole covers, streetlights and services present on the pavements and roads.
- Hardstood ground is present across the majority of the site, comprising brick rubble, tarmac and brick paving.
- Four large manhole covers are present in the south of the site, 3 between the two roads and 1 to the southwest, all within the fenced area.
- Fly tipping is present along the eastern border and part of the southern border.
- The southernmost area of this site outside the fencing comprises kept grassland that looks to have been recently cut.
- The south east of the site comprises residential houses which are currently occupied with back alleys used for parking. Access for site investigation is currently restricted in this area.

- A series of large manhole covers are present along Thornton Street North and are also found in the entrance of Needwood Close, the end of Padget Street and the end of Churnet Street. These may be associated with the culverted brook

Eastern Area

- The eastern part of the site is currently vacant and comprises a grass covered section of land bound by small wooden posting.
- Two mature trees are noted in the north and south of the section.
- The northern part of the area is topographically higher than the southern part and gently slopes down from north to south.
- Evidence of former street lighting is present in the north of the area.

The surrounding area comprises:

- North: A footpath and fenced off section of land.
- East: Residential housing and Collyhurst Park.
- South: Shellard Road and residential housing.
- West: Rochdale Road and residential housing.

2.5 Contamination Sources / Pathways and Receptors

Potential contamination sources are detailed in Table 2-3.

Source	Contaminants
Onsite orchards	- Pesticides (including arsenic and lead used in historic pesticides). - Ash and clinker used for levelling / drainage: heavy metals, sulphates and PAHs[6]. - Localised area of the site, unlikely significant pesticides persistent in the soils given age and limited period of usage.
Onsite former buildings	- Asbestos Containing Material (ACM).
Onsite electricity sub station	- Polychlorinated biphenyl (PCBs) and transistor oils.
Onsite carpet, curtain and upholstery cleaners	- Detergents.
Onsite made ground (potentially infilled watercourse, reservoir and cutting, possible infilled basements, general made ground)	- Ash and clinker (e.g. from hearths and boilers, often historically used for site raising / levelling): Heavy metals, sulphates and PAHs. - Other unknown inorganic / organic contaminants (dependant on fill material source). - If significant depth of organic / putrescible material: Hazardous gas (principally carbon dioxide and methane).
Surrounding industries (oilcloth manufactory, timber yard, tramway, works, warehouse, scrap metal yard)	- Metals, inorganic compounds and organic compounds. - Not expected to be a significant source due to distance from site, age of site usage and intervening culverted brook.
Offsite historic landfill	- Identified 52m SW: hazardous gas (principally carbon dioxide and methane). The area of the landfill has remained undeveloped any gas present may vent directly to the atmosphere through the site surface, although the risk cannot be discounted at this stage.
Underlying Pennine Middle and Upper Coal Measures	- Ground Gas (principally carbon dioxide and methane). - Unlikely to be a significant source as worked or combustible seams not identified on site.

Table 2-3: Potential contamination sources

[6] 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 residents, visitors and site workers). - Offsite land users.
Controlled Waters	- Moston Brook (culvert) on site. - Secondary A Aquifer.
Buildings and structures.	
Potable water pipes.	
Flora within future gardens and landscaping.	

Table 2-4: Potential receptors

Potential pathways are detailed in Table 2-5.

Pathways		
Soil	Human Health[7] (residential land use: houses with private gardens and residential apartments	- Ingestion of soil. - Ingestion of soil-derived indoor dust. - Ingestion of contaminated vegetables (gardens only). - Ingestion of soil attached to vegetables (gardens only). - 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.
	- Windblown dust and fibres to adjacent receptors.	
	- Direct contact with receptors (building foundations, services).	
	- Root uptake.	
Water	- Surface run-off over impermeable surface.	
	- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution).	
	- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (mudstone, siltstone, sandstone) likely to variably permeable. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: culvert, services, worked coal seams.	
Gas	- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (mudstone, siltstone, sandstone) likely to variably permeable. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: culvert, services, worked coal seams.	
	- 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 CLR11[8] 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.

[7] EA (2008). "Updated Technical Background to the CLEA Model". Science Report – SC050021/SR3.
[8] 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 C552[9].

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 guidance[10]) 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.

[9] CIRIA (2001). “Contaminated land risk assessment: A guide to good practice”. C552.
[10] 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 & Recommendations
PL1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust, vegetables, soil attached to vegetables. - Windblown dust.	- Future site users. - Offsite receptors.	- ACM (former buildings, potentially in made ground). - Heavy metals and PAHs (made ground). - PCBs and transistor oils (electricity sub station)	Likely	Medium	**Moderate**	- Likely probability given history of site, date of demolition of former structures, identified ash made ground and potential pathway to receptors in gardens / landscaping. - **Recommendation**: Intrusive investigation required to include soil samples. Localised PCB testing (currently area occupied by housing).
			- Hydrocarbons, other inorganic and organic contaminants (made ground).	Low likelihood	Medium	Moderate / **Low**	- Low likelihood of hydrocarbons and other organic and inorganic contaminants associated with limited potential infilling identified on site and no specific source. Possible exception is the POS area where former reservoir located. - Low risk assumed at this stage (possible localised hotspots). - **Recommendation**: No testing required unless evidence of hydrocarbon contaminants identified in the ground.
			- Pesticides (orchard). - Detergents (cleaners)	Unlikely	Medium	**Low**	- Unlikely probability given limited extent and usage of site as orchard. In addition, the orchard was in use >100 years ago. Significant detergent contamination unlikely to persist within the soils. - **Recommendation**: No further assessment required.
PL2	- Inhalation of vapours. - Migration through permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants such as hydrocarbons, naphthalene (made ground).	Low likelihood	Medium	Moderate / **Low**	- Low probability as significant source of volatile contamination not identified historically but infilling of former reservoir has occurred. - Low risk assumed at this stage (possible localised hotspots). - **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.	- Ground gas: - Methane, carbon dioxide (coal measures).	Unlikely	Severe	**Moderate** / Low	- Unlikely probability as potentially worked coal seams only identified on southern perimeter. - Moderate risk assumed at this stage. - **Recommendation**: Further assessment required once ground conditions are known.
			- Hazardous Gas: - Methane, carbon dioxide (landfill, potentially infilled features 250m of the site).	Low likelihood		**Moderate**	- Low probability given age and size of potentially infilled features identified on and offsite. Historic landfill has remained undeveloped; therefore, gas may vent to atmosphere. - **Recommendation:** Gas monitoring advised due to size of landfill and close proximity to the site.
PL4	- Surface run-off. - Migration through permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Secondary A Aquifer). - Surface water (Moston Brook, (culverted)).	- Mobile contaminants such as metals, PAHs, hydrocarbons, (made ground).	Low	Medium	**Moderate** / Low	- Low probability as significant source of mobile contamination not identified. Clay expected below the site will also prevent migration. - Moderate risk at this stage. - **Recommendation**: Precautionary testing required from selected boreholes.

Table 2-6: Preliminary Contamination Conceptual Model.

Pollutant Linkage	Pathway	Receptor	Contaminant (source)	Probability	Consequence	Risk	Assessment & Recommendations
PL5	- Sulphate attack on concrete.	- Building structure.	- Sulphate (ash 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).	Low	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).	Likely	Minor	**Low**	- Likely probability as contamination considered possible, which may be taken up by flora in soft landscaping / gardens. - **Recommendation**: Investigation work as part of PL1.

Table 2-6 (continued): 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 13th to 23rd July 2020 and comprised the following:

- 18no. Window Sample boreholes drilled to max 5.45 metres below ground level (mbgl) (ref. WS101 to WS118) for contamination and geotechnical purposes.
- 33no. Trial Pits (using JCB 3CX) excavated to max 4.00mbgl (ref. TP101 to TP133) for contamination and geotechnical purposes.
- 10no. Trenches (using JCB 3CX) excavated to max 3.70mbgl (ref. TR101 to TR110) to ascertain edge of reservoir and find evidence of culvert.
- 18no. Utility Trenches (using Vacuum Excavator) excavated to 1.00mbgl (ref. UT1 to UT18.
- 6no. Soak Away tests (ref. SA101 to SA106).
- 4no. Cable Percussion boreholes drilled to 5.9-11.5mbgl (ref. BH1 to BH4) for geotechnical purposes.
- 5no. Dynamic Cone Penetration tests to 1mbgl (ref. DCPSA1 to DCPSA5) for geotechnical purposes.
- 4no. Rotary Bore Holes drilled to competent bedrock then cored to c. 20.00mbgl (ref: RBH1 to RBH4) for geotechnical purposes.

The area in the far southeast of the site is currently inaccessible for site investigation as the occupied houses in the area have not yet been demolished. Further site investigation will be required in this area post demolition.

Areas in the north of Plot C and southeast of Plot B were partially inaccessible due to dense vegetation (primarily trees).

All site investigation locations are shown in Figure 4.

With regards to the contamination assessment the following work was undertaken in each Plot (see Figure 3 for reference).

Plot A	Plot B	Plot C	Plot D	POS
BH4 WS15 WS17 WS18 TP128 TP129 TP130 TP131 TP132 TP133	BH2 BH3 WS9 WS11 WS12 WS16 TP101 TP114 TP115 TP116 TP118 TP119 TP124 TP127	BH1 WS6 WS7 WS8 TP110 TP111 TP112 TP113	WS1 WS2 WS3 WS4 WS5 WS13 TP102 TP103 TP104 TP105 TP106 TP107 TP108 TP109	WS10 WS14 TP117 TP120 TP121 TP122 TP123 TP125 TP126

Table 3-1: Locations within each plot.

The locations were chosen to allow a good spread across the site as well as target areas of concern. Table 3-2 details the targeted and general coverage (non-targeted) site investigation locations.

Site Investigation Locations	Rationale
WS1-WS6, WS11D, WS12, WS15, WS18 TP102-107, TP129-TP133	General site coverage and area of former residential terraces.
WS13, WS3-3B, TP108	Close to, or within, mound on site.
BH1, BH4, BH3, RBH1, RBH2	Areas where apartment blocks are proposed for geotechnical purposes.
BH2, TP117, TP12, TP125, WS10, TP122, TP127, TP101, WS16, WS17	Area of potentially infilled reservoir
WS14, WS14B, TP121, TP123, TP126	Area to remain undeveloped (public open space).
TR101-TR110	To investigate culvert on site and ascertain (if possible) the edge of the potentially infilled reservoir for geotechnical purposes.

Table 3-2: Summary of sampling locations.

With regards to contamination the number of site investigation points (within areas accessible) corresponds to approximately one location per 25m square centres. This is considered to be a conservative sampling density and is in line with BS10175[11] for a 'detailed investigation'.

All profile logs are provided in Appendix B and are in line with BS14688-1[12] and BS5930[13].

3.2 Well Installations

All of the boreholes, apart from WS7C, were installed with monitoring wells for gas, groundwater monitoring and groundwater sampling. Monitoring wells were installed in accordance with BS10175 and CIRIA C665[14] and generally comprised approximately 1-2m plain pipe over a length of slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

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 investigation[15].

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). Results of the PID readings are presented on the

[11] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.
[12] British Standards (2002) Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.
[13] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[14] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[15] EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.

profile logs (Appendix B). The on-site monitoring was carried out in line CIRIA C665[16] 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 3-3 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.	39	WS1 0.10-0.50m WS3 0.10-0.40m WS3B 0.00-0.50m WS4 0.10-0.80m WS5 0.00-0.30m WS6 0.00-0.30m WS7C 0.00-0.60m WS9 0.00-0.60m WS10 0.00-0.30m WS11D 0.50-1.00m WS13 0.00-0.50m WS14B 0.40-1.00m WS15 0.00-0.70m WS17 0.60-1.00m WS18 0.40-1.00m TP102 0.20-0.85m TP104 0.12-0.70m TP105 0.00-1.00m TP106 0.30-1.10m	TP107 0.00-0.30m TP108 0.00-0.30m TP109 0.12-0.65m TP111 010-1.10m TP113 0.00-0.30m TP114 0.20-1.20m TP116 0.00-1.00m TP118 0.20-1.00m TP120 0.10-1.80m TP122 0.30-0.80m TP123 0.30-0.90m TP124 0.10-1.10m TP125 0.30-1.20m TP126 0.30-0.70m TP127 0.10-1.10m TP129 0.10-1.00m TP130 0.00-1.00m TP132 0.00-1.00m TP133 0.00-1.00m	A basic suite with a broad selection of contaminants tested on samples across the site where no significant evidence of contamination was identified (except for occasional ash and coal) and no TVOCs identified from the PID tests.
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM and asbestos screen.	15	WS2 0.70-1.00m WS8 0.80-1.50m WS12 0.30-1.00m WS13 0.80-1.70m WS16 0.50-1.50m TP101 0.00-1.00m TP103 1.20-2.20m TP109 2.20m TP112 0.30-1.00m TP115 0.05-0.20m	TP117 0.20-1.20m TP119 0.40-0.80m TP121 0.20-1.10m TP128 0.50-0.90m TP131 0.04-1.40m	Detailed suite undertaken to confirm the contamination risk and to inform the haz-waste assessment for disposal purposes.

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

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

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

Suites and Contaminants	No. Samples	Location & Depth	Justification
TPHCWG, BTEX, MTBE and SOM.	1	WS14B 4.00-4.50m	Sample tested to confirm the extent of hydrocarbon contamination observed on upper strata.
Waste Acceptance Criteria (WAC)	9	Composite TP119/TP113 Composite TP110/TP108 0.10-1.10m TP101 0.00-1.00m TP104 0.70-1.30m TP105 1.10-2.10m TP115 0.20-1.20m TP124 0.10-1.10m TP128 0.50-0.90m TP131 0.40-1.40m	To aid in waste classification.
Asbestos Identification	2	TP108 0.80m TP122 0.50m	Samples were tested for asbestos as visual evidence of fibres were observed.

Table 3-3 Continued. Summary of soil sample testing undertaken.
Notes:
If asbestos present during screen identification and quantification will be undertaken.
Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether, SOM=Soil Organic Matter.

3.3.2 Water Sampling / Leaching Testing

To establish the condition of shallow groundwater LKC undertook 6 groundwater samples. It was not possible to sample all installed boreholes due to limited groundwater at the time of sampling.

The groundwater samples were collected a minimum of 1 week after drilling had finished and following well development. Sample collection was undertaken using a low flow sampling pump using thin walled tubing to encourage laminar flow and minimise the potential loss of volatiles during sampling The borehole was purged of all standing water and the sample collected from the recharged water. The sample was collected in glass and plastic bottles and a glass vial. A water meter was used to test the pH, temperature and conductivity before sampling until equilibrium conditions were met, as per BS10175[17] guidelines.

All water samples were placed in glass bottles, plastic bottles and septum topped vials and stored in ice packed cool boxes. The samples were sent to Chemtest on the same day for analysis. The sampling suite is presented in Table 3-4.

Sampling was carried out in accordance with BS5930[18] and BS5667-11[19].

Due to insufficient water volume in WS14B, groundwater samples could not be obtained. Therefore, leaching tests were undertaken as an alternative.

It should be noted that the leaching test is an aggressive test and may not give results that are truly representative of the groundwater on site.

Leaching tests were not undertaken across the remainder of the site or in areas of concern (hydrocarbons in the soil), as traditionally the leaching test was developed for

[17] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.
[18] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[19] British Standard (2009). "Water Quality – Sampling. Part 11: Guidance on Sampling of Groundwaters". BS ISO 5667-11:2009.

inorganic constituents and the leaching of organics is poorly understood[20]. The main risk is expected to be from inorganic contaminants.

Groundwater and leaching test results are presented in Appendix D. Results are discussed in Section 5.4.

Suites and Contaminants	No. Samples	Location	Justification
Metals / metalloids, pH, sulphate, cyanide suite, TPHCWG, BTEX, MTBE, speciated PAHs, phenol and hardness.	6	WS1 (G) WS4 (G) WS5 (G) WS6 (G) WS8 (G) BH3 (G)	Detailed suite undertaken where groundwater present across the site to confirm the absence of contamination.
TPHCWG, BTEX, MTBE and hardness.	3	TP117 0.20-1.20mbgl (L) TP119 0.40-0.80mbgl (L) WS14B 1.60-2.10mbgl (L)	Contamination identified within soils; therefore, detailed suite undertaken where groundwater present across the site to confirm the extent of contamination.

Table 3-4. Summary of groundwater sampling tests undertaken.
Notes:
G=Groundwater Sample, L=Leaching Test
Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether.

3.4 Gas Monitoring

Six gas monitoring visits have been undertaken over a 3-month period in all installed boreholes.

Monitoring was undertaken using a Geotechnical Instruments GA2000 plus and GA5000 in accordance with the monitoring protocol outlined in CIRIA C665[21] (flow rate measured first). The monitoring was undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions.

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

3.5 Soakaway Tests

Soakaway tests were undertaken in SA101, SA103, SA104 and SA106 in accordance with BRE Digest 365[22].

It was not possible to carry about the testing in SA105 and SA106 due to deep made ground, instability of the trial pit walls in both locations and shallow groundwater within SA106.

The trial pits were machine excavated to dimensions of 0.5-0.8m wide, 2.0-2.2m long and 1.2-2.0m depth. The arisings were logged in accordance with BS14688-1[23] and BS5930.

[20] EA (2009). "Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrological Risk Assessment."
[21] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[22] BRE (2003) 'Soakaway Design' British Research Establishment BRE Digest 365 2003
[23] British Standards (2002). Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.

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

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

4 Ground Conditions

4.1 Made Ground

Made ground varied significantly across the site and was recorded between depths of 0.40-13.50mbgl and was primarily reworked natural material. Contours of made ground thickness are present in Geotechnical Assessment report.

In Plot A and in Plot D, outside of tarmacked areas, the made ground was predominantly gravelly sand comprising demolition rubble. Beneath the tarmac in Plot D cobbley sands and gravel of a MOT type material are present to between 0.65mbgl and 0.85mbgl.

A significant thickness of ashy made ground was encountered across the site, predominantly in the east and with increasing thickness further to the east. It would appear that a large area of this site has been infilled prior to the 1890 mapping. The presence of cockle shells, oyster shells and pottery smoking pipes also point to infilling around the early 1800s. 1st Edition Geological Mapping Sheet 104 at 1:10560 Published in 1848 show contours sloping down from the west of the site to the reservoir in the east.

Several obstructions were encountered in the ground during the site investigation works:

- WS11 was repositioned four times (WS11-WS11D) due to the presence of sandstone cobbles (possible former cobbled road) at 0.30-0.40mbgl. Further southeast of this position TP119 encountered a cobbled sandstone road.
- WS7 was re-positioned three times (WS7-WS7C) due to concrete obstructions. These were also encountered in TP110 and TP112. The edges of the slab were located in TR104 and TR105.
- WS3 was repositioned once (WS3-WS3B) due to the presence of a possible void in the mound in the north of site between 1.65-3.30mgl.
- WS3 was repositioned once (WS3-WS3B) due to the presence of a possible void in the mound in the north of site between 1.65-3.30mgl. It is unknown what this feature may be.

Slight hydrocarbon odour relating to large pieces of tarmacadam was identified in WS14B between 1.60-2.00mbgl. Sandstone cobbled setts (with bitumen coating) was noted in TP119 at 0.40-0.50mbgl.

4.2 Natural Strata

Natural superficial deposits generally comprised firm to stiff consistency brown sandy CLAY between 0.40mbgl and 4.30mbgl.

Slightly gravelly clayey SAND was encountered in WS15 below 1.20mbgl.

4.3 Bedrock

Sandstone bedrock was encountered in BH1 at 10.00mbgl, and mudstone bedrock was encountered in BH2 at 7.50mbgl and in BH4 at 10.30mbgl.

Interbedded sandstone, mudstone and siltstone was recorded in RBH1 below 3.00mbgl, and in RBH2 below 13.50mbgl.

The bedrock was noted to have a dip of approximately 20°. Slicken lines and polished surfaces were present within the mudstone showing movement and a plane of weakness.

4.4 Groundwater

4.4.1 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 two occasions.

Results are summarised in Table 4-1.

BH/TP	Water Strike Depths (mbgl)	Well Response Zone (mbgl)	No. of Monitoring Visits	Monitoring Depths (mbgl)			Sample Taken?	Evidence of Contam?
				Min	Max	Base		
WS1	Dry	1.0-3.0 (C)	6	1.52	2.65	2.87-2.95	Y (G)	N
WS2	4.00	2.0-4.0 (C)	6	1.30	1.80	3.25-3.92	N	N
WS3B	Dry	1.0-3.0 (C)	6	Dry	3.47	3.41-3.54	N	N
WS4	Dry	1.0-3.0 (MG/C)	6	0.78	1.21	3.61-3.68	Y	N
WS5	1.0, 2.1 & 4.5	1.0-4.7 (C)	6	0.75	0.90	4.41-4.47	Y	N
WS6	Dry	0.8-3.0 (C)	6	0.54	1.67	2.82-2.90	Y (G)	N
WS8	4.5	1.0-5.0 (MG/C)	6	3.27	3.80	4.82-4.95	Y (G)	Y*
WS9	Dry	1.0-3.0 (MG/C)	6	Dry	Dry	2.94-3.01	N	N
WS10	Dry	1.0-5.0 (MG)	6	Dry	Dry	4.85-4.94	N	N
WS11D	Dry	1.0-3.0 (C)	6	Dry	1.18	2.79-2.88	N	N
WS12	Dry	1.0-5.0 (C)	6	3.81	3.86	3.93-4.12	N	N
WS13	Dry	1.0-4.0 (MG/C)	6	Dry	3.95	3.88-3.98	N	N
WS14B	Dry	1.0-5.0 (MG/C)	6	Dry	Dry	4.84-4.93	N	N
WS15	2.1	0.8-2.0 (C/S)	6	Dry	1.79	1.80-1.88	N	N
WS16	Dry	1.0-4.0 (MG)	6	Dry	0.49	4.83-4.91	N	N
WS17	Dry	1.0-3.0 (MG)	6	2.86	2.89	2.88-2.97	N	N
WS18	Dry	1.0-4.0 (MG/C)	6	Dry	Dry	3.88-3.97	N	N
BH1	Dry	2.0-10.0 (C)	6	Dry	9.79	9.82-10.10	N	N
BH2	Dry	5.0-8.50 (C/Ms)	6	Dry	Dry	7.96-8.23	N	N
BH3	Dry	1.0-5.5 (C)	6	3.82	4.88	5.34-5.40	N	N
BH4	10.3	1.0-10.0 (MG)	6	9.09	9.61	9.60-9.78	N	N
WS18	Dry	1.0-4.0 (MG/C)	6	Dry	Dry	3.96-3.97	N	N

Table 4-1: Summary of water strike depths within boreholes and trial pits.
Response Zones:
MG=Made Ground; C=Clay; Ms=Mudstone
Notes:
G=Groundwater Sample. * = Slight sheen

All trial pit locations were recorded as dry.

Soakaway Tests

Soakaway tests were also carried out within clay strata at the request of the drainage engineer. The results of the soakaways are presented in Appendix F and summarised in Table 4-2.

BRE365[24] indicates that the calculation of the soil infiltration rate is made from the time taken for the water level to fall from 75% to 25% effective storage depth in each pit.

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

Where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth.
a_{p50} = the internal surface area of the trial pit up to 50% effective depth including the base area.
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.

Due to the slow rate at which water drained, three tests were not carried out in both locations and tests were terminated before the required effective depth. Tests were not successful in any location.

TP	Test No.	Strata at Test Level	Time for outflow between 75% and 25% (mins)	Soil infiltration rate (m/s)
SA101	1	Clay	Not reached	Test Failed
SA102	1	Clay	Not reached	Test Failed
SA103	1	Clay	Not reached	Test Failed
SA104	1	Clay	Not reached	Test Failed
SA105		Clay	Not reached	Test Failed
SA106	1	Clay	Not reached	Test Failed

Table 4-2: Summary of soakaway tests and permeability.

It should also be noted that soakaways are not normally allowed to be installed in made ground.

Based on the above it is unlikely soakaways can be used on the site.

[24] BRE (2003) 'Soakaway Design' British Research Establishment BRE Digest 365 2003

5 Generic Risk Assessment

5.1 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 (CLR11[25]). Information gathered from the risk assessment has been collated in the revised contamination conceptual model in Section 5.6.

5.2 Soil Risk Assessment

5.2.1 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[26,27]. The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))[28] 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 S4ULs[29]. 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[30,31,32,33].

If contaminants are not present as C4SLs and S4ULs then LKC will use ATRISK SSVs or CL:AIRE GACs[34]. 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

[25] EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.
[26] Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."
[27] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[28] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[29] LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."
[30] EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.
[31] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[32] EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.
[33] EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.
[34] CL:AIRE (2009). "The Soil Generic Assessment Criteria for Human Health Risk Assessment."

PAHs[35,36] and naphthalene the most volatile and soluble[37]. 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 negligible[38]. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)[39] and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

The proposed development is mostly for residential houses with gardens, therefore the assessment criteria for residential with plant uptake has been used for Plots A-D.

For areas where apartment blocks are proposed in Plots A and C, the assessment criteria for residential without plant uptake has been used given that there will be shared soft landscaping only.

The assessment criteria for Public Open Space (Residential) has been used for POS area in the east.

All criteria have been generated using the CLEA V1.06 model[40] based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

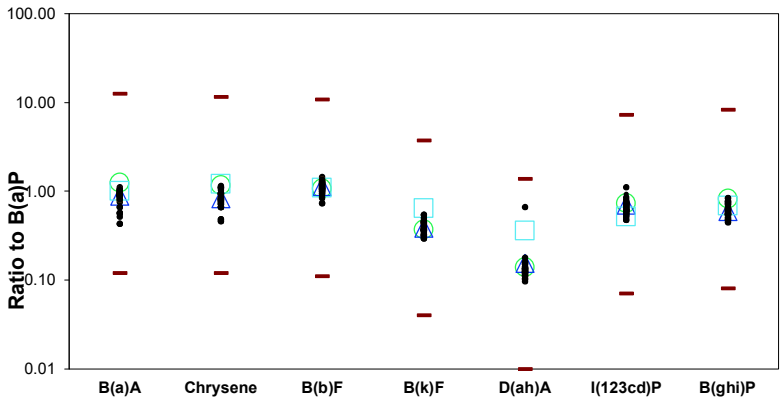
A summary of the generic assessment criteria is provided in Appendix G. ATRISK SSVs and CL:AIRE GACs were not required for this dataset and have not been included.

B(a)P as Surrogate Marker

Based on the above assumption for PAHs, LKC undertook an assessment of the data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et.al*[41], which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 5-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.

[35] EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.
[36] USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."
[37] EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.
[38] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[39] HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.
[40] EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.
[41] Culp, S; Gaylor, D; Sheldon, W; Goldstein, L and Beland, F (1998). " A Comparison of Tumours Induced by Coal Tar and Benzo-a-pyrene in a 2-Year Bioassay." Carcinogenesis. **Vol 19**, no. 1, pp. 117-124.



Graph 5-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 45 samples (where values were >LOD to allow the calculation of a ratio).

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

All the data points that could be used to calculate ratios fall inside the upper or lower limits.

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

5.2.2 Soil Results Comparison against Assessment Criteria

All analysis sheets are presented in Appendix C. All the data has been compared to relevant assessment criteria and is presented in Appendix G. Elevated and pertinent results are presented in Table 5-1.

A plan showing the location of the elevated contaminants is present in Figure 5.

Contaminant	Units	No. of samples	Elevated Results	Sample Location	Criteria (1%/2.5%/6%)	Source of Criteria
Metals						
Arsenic	mg/kg	54	62	TP101 (0.0-1.0m)	37 (residential with plant uptake)	C4SL
			99	WS9 (0.0-0.6m)		
			39	WS17 (0.6-1.0m)		
			140	WS16 (0.5-1.5m)		
Lead	mg/kg	54	1000	WS2 (0.7-1.0m)	200 (residential with plant uptake)	C4SL
			1400	WS13 (0.0-0.5m)		
			520	WS3 (0.1-0.4m)		
			210	WS3 (0.8-1.2m)		
			480	TP118 (0.2-1.0m)		
			360	TP119 (0.4-0.8m)		
			300	TP111 (0.1-1.1m)		
			240	TP113 (0.0-0.3m)		
			490	TP101 (0.0-1.0m)		
			710	WS9 (0.0-0.6m)		
			270	WS11D (0.0-0.4m)		
			350	WS7C (0.0-0.6m)		
			430	WS17 (0.6-1.0m)		
			300	WS18 (0.4-1.0m)		
			600	WS16 (0.5-1.5m)		
PAHs						
Benzo(a)pyrene	mg/kg	54	6.5	WS5 (0.0-0.5m)	5 (residential with plant uptake)	C4SL
			9	WS3 (0.1-0.4m)		
			10	WS3 (0.8-1.2m)		
			370	TP119 (0.4-0.8m)		
			23	TP111 (0.1-1.1m)		
			6.4	TP113 (0.0-0.3m)		
			9.0	TP108 (0.0-0.3m)		
			5.4	TP101 (0.0-1.0m)		
			11	WS6 (0.0-0.3m)		
			9.2	WS18 (0.4-1.0m)		
			7.6	TP133 (0.0-1.0m)		
			25	TP129 (0.1-1.0m)		
			11	WS6 (0.0-0.3m)		
			170	WS14B (1.6-2.0m)	10 (POS_{resi})	
			43	TP117 (0.2-1.2m)		
			29	TP125 (0.3-1.2m)		
Naphthalene	mg/kg	54	15	TP119 (0.4-0.8m)	13 (residential with plant uptake)	S4UL
			22	TP111 (01-1.1m)		
TPHs						
Aromatic C21-35	mg/kg	16	2000	TP119 (0.4-0.8m)	1700 (residential with plant uptake)	S4UL
			6400	WS14B (1.6-2.0m)	3800 (POS_{resi})	
GENERAL						
pH	pH	55	Range 7.4-11.5			
SOM	%	55	Range 1.5-48			
Asbestos	N/A	55	Detected (see Table 5-2)			

Table 5-1: Summary of elevated and pertinent analytical results.

Notes:
Only results that exceeded assessment criteria have been shown and results from **all depths** are noted.
Results have been compared to the nearest appropriate SOM.

Asbestos was identified, as detailed in Table 5-2.

Sample Location	ID	Type	Total Asbestos (%)
WS3 (0.10-0.40m)	Chrysotile	Fibres/Clumps	<0.001
TP104 (0.2-0.6m)	Chrysotile	Board fragment	-
TP108 (0.8m)	Chrysotile	Cement fragment	-
TP112 (0.5m)	Chrysotile	Cement fragment	-

Table 5-2: Details of asbestos identified.

5.2.3 Hazard Quotient

To examine the potential additivity of toxicological effects between the petroleum hydrocarbon fractions, a Hazard Index (HI) as described by the Environment Agency[42] technical report was calculated for the samples. This should be undertaken when there are no elevated petroleum hydrocarbons, when compared to assessment criteria of individual fractions. A HI was calculated for WS14B (4.0-4.5m), WS13 (0.8-1.7m) and TP112 (0.3-1.0m), TP101 (0.0-1.0m) and TP117 (0.2-1.2m) and are summarised in Table 5-3. A HI was not calculated for the remaining samples as no or minimal petroleum hydrocarbons fractions were present.

HI results are presented in Table 5-3.

Sample Location	Hazard Index	Further consideration required?
WS14B (4.0-4.5m)	0.65	N
WS13 (0.8-1.7m)	0.09	N
TP112 (0.3-1.0m)	0.30	N
TP101 (0.0-1.0m)	0.06	N
TP117 (0.2-1.2m)	**1.07**	**Y**

Table 5-3: Hazard Index results.

Notes

Bold where HI is >1

5.2.4 Direct Contact Risk – Pollutant Linkage 1

Residential Housing (Proposed Gardens)

Metals

Elevated arsenic (4/ 54 samples) and lead (15/54 samples) have been identified on site, and given the number and location of elevated samples, the contamination is considered to be site wide across Plots A-D in areas where residential houses with private gardens are proposed.

PAHs

Elevated benzo(a)pyrene (as a surrogate marker for carcinogenic PAHs), was identified (13/54 samples) in made ground samples across all plots. The source is anticipated to be coal and ash noted in the soils with exception of the very high concentration at TP119 likely related to small pieces of bitumen chipped off a sandstone cobble sett and not indicative of the composition of surrounding made ground.

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

Petroleum Hydrocarbons – Heavy End (>EC 16)

Elevated aromatic C21-35 was identified in TP119 (0.4-0.8m) located in Plot B (1/16 samples). As with the high PAH the elevated result is likely related to small pieces of bitumen chipped off a sandstone cobble sett and not indicative of the composition of surrounding made ground. The laboratory interpretation identified the chromatogram as PAH source.

Summary of Pollutant Linkage 1 (Direct Contact) - Residential Housing (Proposed Gardens)

Based on the above assessment LKC considers at the distribution of exceedances identified, the contaminants are considered to pose a potential risk to future site users (residents) in gardens and soft landscaped areas, where made ground may be exposed / in contact with vegetables. The principal pathways are the ingestion pathways (soil, dust and vegetables) and dermal contact.

LKC considers the probability of metals and PAHs affecting site users (via ingestion and dermal contact) as likely in gardens of residential houses. Given a medium consequence a moderate risk is considered appropriate and remediation is recommended.

LKC considers the probability of petroleum hydrocarbons affecting site users (via ingestion and dermal contact) as unlikely in gardens of residential houses. Given a medium consequence a low risk is considered appropriate and remediation is not considered necessary for petroleum hydrocarbons.

Apartment Blocks (Landscaping)

Metals

No elevated metals identified above the criteria for the proposed apartment block areas in Plots A and C.

PAHs

No elevated PAHs identified above the criteria for the proposed apartment block areas in Plots A and C.

Petroleum Hydrocarbons – Heavy End (>EC 16)

No elevated petroleum hydrocarbons identified above the criteria for the proposed apartment block areas in Plots A and C.

Summary of Pollutant Linkage 1 (Direct Contact) - Residential Apartment Blocks (Proposed Landscaping)

Based on the above assessment LKC considers the probability of metals. PAHs and petroleum hydrocarbons affecting site users (via ingestion and dermal contact) as unlikely in landscaped areas of apartment blocks. Given a medium consequence a low risk is considered appropriate and remediation is not considered necessary for these contaminants.

Please note the apartment block locations need to be finalised and areas where trees were present could not be accessed.

Public Open Space

Metals

No elevated metals identified above the criteria for the proposed POS area.

PAHs

Elevated PAHs were noted in the POS area (3/10 samples). All appear to be related to the occasional tarmacadam fragments identified. The laboratory interpretation identified the chromatogram as PAH source.

LKC considers these discrete pieces of tarmacadam are not considered to be representative of the ground conditions as a whole. In addition, the area is not to be developed and will be managed and maintained by a private contractor. Significant exposure is not anticipated.

Petroleum Hydrocarbons

Elevated aromatic EC21-35 was identified in WS14B (1.6-2.0m) within the POS area. Visual/olfactory evidence of hydrocarbon contamination was also identified at WS14B in the form of lumps of tarmacadam fragments. Confirmed as PAHs form chromatogram.

Traces of heavy end hydrocarbons (not above assessment criteria) were identified in TP117 (0.2-1.2m). The hazard index of this sample was above 1 and further consideration is required.

As for PAHs the source is likely for discrete tarmacadam fragments and not considered to be representative of the ground conditions as a whole. Tarmacadam is known to comprise heavy end hydrocarbons, such as PAHs[43]. The matrix of tarmacadam comprises inert aggregate surrounded by bitumen, thus may not be in a form that can readily be ingested, absorbed through the skin or inhaled (dust) due to grain size). The laboratory preparation comprises crushing the sample and not be in a form that would be significantly observed onsite (much finer grain if crushed).

Summary of Pollutant Linkage 1 (Direct Contact) – POS Area

Based on the above assessment LKC considers at the distribution of exceedances identified in the POS area is not considered to pose a significant risk to potential key receptors considering exceedances relate to discrete tarmacadam fragments (relatively inert) and not considered to be representative of the ground conditions as a whole. In addition, the area is not to be developed and will be managed and maintained by a private contractor. Significant exposure is not anticipated.

LKC considers the probability of PAHs and petroleum hydrocarbons affecting site users (via ingestion and dermal contact) as unlikely for the POS area. Given a medium consequence a low risk is considered appropriate and remediation is not required.

[43] Kim E. Grosenheider, Paul R. Bloom, Thomas R. Halbach and Marilyn R. Johnson (2006). "A Review of the Current Literature Regarding Polycyclic Aromatic Hydrocarbons in Asphalt Pavement." University of Minnesota.

Asbestos

Asbestos (Chrysotile) was identified in WS3, TP104, TP18 and TP112. The asbestos was identified as free fibres in WS3, board in TP104 and cement in TP108 and TP112. The source of the asbestos is likely to be from demolished buildings. These were all located in the proposed residential housing part of the site.

Given the size of the site (over 4 hectares) and the number of samples containing asbestos in the soil (1 out of 55 samples) and 3 other discrete samples where visual evidence was identified (no fibres detected within the soil analysis in these locations), these samples are expected to be relatively limited / localised to the north of the site in Plots D and C.

LKC have utilised the Joint Industry Working Group (JIWG) Decision Support Tool for receptor risk ranking of ACM onsite. This model incorporates guidance from CL:AIRE CAR-SOIL[44] and CIRIA C733[45].

In this model a child of school age playing in the landscaped area for 1 hour was assumed in close proximity to the source. A medium respirable index was assumed base on the ACM identified onsite as per RIVM[46].

The assessment was carried out assuming 'low disturbance' based on ACM at a shallow depth.

For added conservatism, the model does not take into account moisture content, which can significantly reduce the potential for airborne fibre release from soil in a typical UK climate. AGS interim guidance[47], based on work by Addison et al[48], notes that the addition of 10% water to soil decreases the risk of potential fibre release by a factor of between 2 and 10. The moisture content of the soil from this area was 10-14% making fibre release unlikely.

Data from Addison *et al* shows that a sandy soil with Chrysotile fibre concentrations of 0.01%w/w (1 order of magnitude lower recorded) when agitated in a moderately aggressive way, produced between 0.01fibres/ml and no recordable fibres at moisture contents of 5% and above. It should be noted that the clearance level is 0.01f/ml.

The JWIG model output sheet is presented in Appendix J. A **low risk** was identified to key receptors based on general worst case scenario, such as some ground disturbance.

Asbestos may affect site users in garden areas in areas of the site, via the inhalation of fibres. Considering limited fibre within the soil (1/55 samples) and evidence of 3 discrete small ACM pieces the probability is considered to be low and with a medium consequence the risk is considered moderate / low for the area of residential housing and low for the rest of the site. The removal of the source and hand picking any visible pieces will mitigate the risk. Furthermore, there will be a clean capping layer in gardens to remove any direct contact pathway.

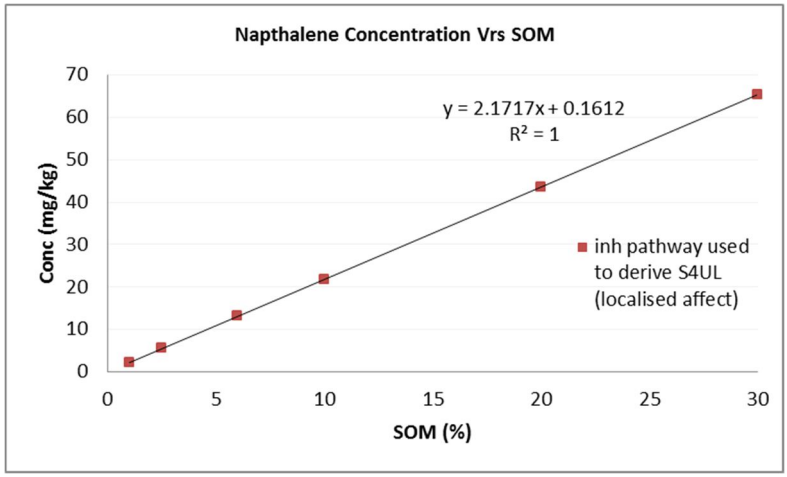
[44] CL:AIRE (2016). "CAR-SOIL Controlled Asbestos Regulations 2012: Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials" Industry Guidelines.
[45] CIRIA (2014). "Asbestos in Soil and Made Ground: A guide to Understanding and Managing Risks." CIRIA C733.
[46] RIVM (2003). "Assessment of the Risks of Soil Contamination with Asbestos" CIRIA C733." RIVM Report 711701034/2003.
[47] AGS (2013). "Site Investigation Asbestos Risk Assessment." AGS Interim Guidance, Feb 2013, Ver 2.4.
[48] Addison et al (1988). "The Release of Dispersed Asbestos Fibres from Soils." Institute of Occupational Medicine Report No. TM/88/14.

Additional consideration should also be given to the risk to workers and offsite receptors during groundworks and construction. This is discussed further in Section 8.1.

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

Naphthalene was elevated in TP119 (0.4-0.8m) and TP111 (0.1-1.1m) at concentrations of 15mg/kg and 22mg/kg respectively. The SOM values for these samples are 48% (TP119) and 8.3% (TP111).

There is a linear relation (r^2=1) between Naphthalene and SOM concentrations (see Graph 5-2).



Graph 5-2: Naphthalene vs. SOM

The modified assessment criteria for naphthalene (lowest SOM of 8.3%) is calculated as 18mg/kg. When using the above formula only TP111 (0.1-1.1m) marginally exceeds this modified criterion and may pose a low risk to site users via the inhalation of vapours.

Given that only one marginal exceeds has been identified out of 54 samples, it is not considered to be representative of the ground conditions on site as a whole. The source as discussed previously is likely related to small discrete pieces of tarmacadam, which is not representative of the surrounding made ground matrix. No other elevations were identified from confirmatory soil analysis or high PID readings encountered.

Therefore, LKC consider the probability of volatile contaminants affecting site users as unlikely across the site. The consequence is expected to be medium, giving a low risk and no remediation is required with respect to pollutant linkage 2.

5.3 Gas Risk Assessment

A total of six gas monitoring visits were undertaken over a three month period. Gas monitoring results in full are presented in Appendix E. Following guidance set out in CIRIA C665[49] and BS8485[50] peak methane and carbon dioxide concentrations have been used in the gas risk assessment. In addition, and as per guidance, flow rates were measured first.

All gas concentrations, flow, pressure and groundwater levels are shown on Table 5-4.

Boreholes	Visit	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	H_2S (ppm)	CO (ppm)	Flow (l/h)	Groundwater (mbgl)	Pressure (mb)
WS1	1	0.1	1.8	14.5	<0.1	<0.1	<0.1	1.52	1010 (r)
	2	<0.1	3.3	14.3	<0.1	<0.1	4.3	2.43	1007 (r)
	3	0.1	3.8	12.7	<0.1	5.0	0.1	2.32	1012 (r)
	4	<0.1	4.3	13.7	<0.1	1.0	<0.1	2.65	1006 (f)
	5	<0.1	4.3	14.2	<0.1	<0.1	<0.1	2.56	1003 (r)
	6	0.0	4.2	15.9	<0.1	<0.1	<0.1	2.38	1021 (r)
WS2	1	<0.1	<0.1	19.7	<0.1	<0.1	<0.1	1.80	1010 (r)
	2	<0.1	<0.1	20.8	<0.1	<0.1	<0.1	1.57	1007 (r)
	3	<0.1	0.4	20.8	<0.1	1.0	<0.1	1.45	1012 (r)
	4	0.1	0.5	13.7	<0.1	1.0	-0.1	1.79	1004 (f)
	5	<0.1	0.6	20.5	<0.1	<0.1	<0.1	1.80	1006 (r)
	6	<0.1	1.1	16.0	<0.1	<0.1	<0.1	1.36	1021 (r)
WS3B	1	<0.1	0.1	20.5	<0.1	<0.1	<0.1	3.47	1009 (r)
	2	<0.1	0.9	19.9	<0.1	<0.1	<0.1	3.44	1007 (r)
	3	<0.1	1.2	19.9	<0.1	3.0	<0.1	3.43	1012 (r)
	4	<0.1	1.0	20.8	<0.1	3.0	<0.1	Dry	1006 (r)
	5	<0.1	1.0	20.9	<0.1	<0.1	<0.1	Dry	1003 (r)
	6	0.0	0.9	20.7	<0.1	<0.1	<0.1	Dry	1021 (r)
WS4	1	<0.1	<0.1	19.8	<0.1	<0.1	<0.1	1.04	1010 (r)
	2	<0.1	<0.1	9.3	<0.1	<0.1	0.3	0.80	1007 (r)
	3	0.1	<0.1	6.2	<0.1	<0.1	<0.1	0.81	1012 (r)
	4	0.1	<0.1	4.6	<0.1	<0.1	<0.1	1.21	1006 (f)
	5	0.1	0.5	3.5	<0.1	<0.1	0.1	0.78	1003 (r)
	6	0.0	0.5	4.0	<0.1	<0.1	-0.1	0.83	1021 (r)
WS5	1	<0.1	0.1	20.3	<0.1	<0.1	<0.1	0.84	1010 (r)
	2	<0.1	0.5	19.4	<0.1	<0.1	<0.1	0.76	1007 (r)
	3	0.1	5.0	19.1	<0.1	8.0	<0.1	0.76	1012 (r)
	4	0.1	0.6	19.8	<0.1	3.0	<0.1	0.90	1005 (f)
	5	0.1	0.6	19.8	<0.1	<0.1	-0.2	0.75	1002 (r)
	6	0.1	0.6	20.4	<0.1	<0.1	0.1	0.76	1020 (r)

Table 5-4: Summary of gas monitoring.

Notes:

If concentrations / flow is zero, then equipment detection limits are assumed.
Table shows peak concentrations of CH_4, CO_2, O_2, H_2S and CO.
Bold where CO_2 exceeds 5%v/v and CH_4 exceeds 1%v/v.
Atmospheric pressure (over past 24hrs): r=rising, f=falling, s=steady

[49] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[50] BSI (2015). "Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments." BS8485:2015.

Boreholes	Visit	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	H_2S (ppm)	CO (ppm)	Flow (l/h)	Groundwater (mbgl)	Pressure (mb)
WS6	1	<0.1	1.4	19.8	<0.1	<0.1	<0.1	1.67	1010 (r)
	2	<0.1	1.1	19.8	<0.1	<0.1	<0.1	0.84	1007 (r)
	3	0.1	0.5	20.7	<0.1	1.0	<0.1	1.69	1012 (r)
	4	<0.1	2.2	18.8	<0.1	2.0	<0.1	1.11	1006 (f)
	5	<0.1	1.1	20.7	<0.1	<0.1	<0.1	0.54	1002 (r)
	6	<0.1	1.5	21.6	<0.1	<0.1	-0.1	0.59	1021 (r)
WS8	1	<0.1	2.2	18.1	<0.1	<0.1	<0.1	3.73	1011 (r)
	2	<0.1	2.2	16.6	<0.1	3.0	<0.1	3.80	1008 (r)
	3	0.1	3.9	15.1	<0.1	4.0	<0.1	3.54	1012 (r)
	4	<0.1	3.8	15.8	<0.1	<0.1	0.2	3.63	1007 (f)
	5	<0.1	**6.8**	0.5	<0.1	<0.1	<0.1	3.38	1004 (r)
	6	<0.1	3.4	14.5	<0.1	<0.1	<0.1	3.27	1021 (r)
WS9	1	<0.1	1.6	20.0	<0.1	<0.1	<0.1	Dry	1008 (r)
	2	<0.1	2.5	17.5	<0.1	2.0	-0.2	Dry	1008 (r)
	3	0.1	3.2	17.0	<0.1	1.0	<0.1	Dry	1012 (r)
	4	<0.1	2.6	18.6	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	<0.1	3.2	16.0	<0.1	<0.1	-0.1	Dry	1005 (r)
	6	<0.1	2.5	18.7	<0.1	<0.1	<0.1	Dry	1022 (r)
WS10	1	<0.1	4.1	14.4	<0.1	<0.1	<0.1	Dry	1008 (r)
	2	<0.1	**11.1**	1.8	<0.1	2.0	<0.1	Dry	1008 (r)
	3	0.1	**6.4**	13.4	<0.1	<0.1	<0.1	Dry	1012 (r)
	4	<0.1	3.5	17.3	<0.1	1.0	<0.1	Dry	1007 (f)
	5	<0.1	1.1	19.9	<0.1	<0.1	<0.1	Dry	1004 (r)
	6	<0.1	**9.7**	4.8	<0.1	<0.1	<0.1	Dry	1022 (r)
WS11D	1	<0.1	1.5	20.0	<0.1	<0.1	<0.1	Dry	1007 (r)
	2	<0.1	1.3	20.2	<0.1	<0.1	<0.1	Dry	1008 (r)
	3	<0.1	1.8	19.7	<0.1	1.0	<0.1	Dry	1012 (r)
	4	<0.1	1.2	20.8	<0.1	2.0	<0.1	Dry	1007 (f)
	5	<0.1	1.4	20.0	<0.1	<0.1	<0.1	Dry	1005 (r)
	6	<0.1	1.1	20.2	<0.1	<0.1	<0.1	1.18	1022 (r)
WS12	1	<0.1	0.9	20.6	<0.1	<0.1	<0.1	3.81	1008 (r)
	2	<0.1	1.4	20.2	<0.1	<0.1	<0.1	3.81	1008 (r)
	3	0.1	1.7	19.3	<0.1	<0.1	<0.1	4.80	1012 (r)
	4	<0.1	1.4	20.5	<0.1	<0.1	<0.1	3.83	1007 (f)
	5	<0.1	1.7	19.3	<0.1	<0.1	<0.1	3.86	1005 (r)
	6	>0.1	1.8	19.8	<0.1	<0.1	<0.1	3.85	1022 (r)
WS13	1	<0.1	0.0	20.7	<0.1	<0.1	<0.1	3.93	1009 (r)
	2	<0.1	0.8	20.8	<0.1	<0.1	0.2	4.95	1008 (r)
	3	0.1	0.9	19.8	<0.1	<0.1	<0.1	3.95	1012 (r)
	4	<0.1	0.8	20.8	<0.1	1.0	<0.1	Dry	1006 (f)
	5	<0.1	0.8	20.6	<0.1	<0.1	<0.1	Dry	1003 (r)
	6	<0.1	0.7	20.7	<0.1	<0.1	<0.1	Dry	1021 (r)
WS14B	1	<0.1	2.7	14.7	<0.1	<0.1	<0.1	Dry	1010 (r)
	2	<0.1	**6.1**	12.4	<0.1	2.0	0.2	Dry	1008 (r)
	3	0.1	**5.4**	13.6	<0.1	<0.1	<0.1	Dry	1012 (r)
	4	<0.1	4.3	16.6	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	0.1	2.5	18.7	<0.1	<0.1	<0.1	Dry	1004 (r)
	6	<0.1	4.2	15.4	<0.1	<0.1	<0.1	Dry	1022 (r)
WS15	1	0.1	2.0	16.2	<0.1	<0.1	<0.1	1.79	1009 (r)
	2	<0.1	0.4	20.4	<0.1	2.0	<0.1	1.71	1008 (r)
	3	0.1	0.9	20.6	<0.1	2.0	<0.1	1.53	1012 (s)
	4	<0.1	1.7	20.6	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	<0.1	1.4	18.2	<0.1	<0.1	<0.1	1.61	1006 (r)
	6	<0.1	1.8	19.8	<0.1	<0.1	<0.1	1.62	1022 (r)

Table 5-4 Continued: Summary of gas monitoring.

Notes:

If concentrations / flow is zero, then equipment detection limits are assumed.
Table shows peak concentrations of CH_4, CO_2, O_2, H_2S and CO.
Bold where CO_2 exceeds 5%v/v and CH_4 exceeds 1%v/v.
Atmospheric pressure (over past 24hrs): r=rising, f=falling, s=steady

Boreholes	Visit	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	H_2S (ppm)	CO (ppm)	Flow (l/h)	Groundwater (mbgl)	Pressure (mb)
WS16	1	0.1	**13.0**	6.0	<0.1	<0.1	<0.1	Dry	1007 (r)
	2	<0.1	**7.5**	14.0	<0.1	1.0	<0.1	Dry	1008 (r)
	3	0.1	**9.0**	10.4	<0.1	1.0	<0.1	Dry	1012 (s)
	4	0.1	**10.1**	9.1	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	<0.1	**10.7**	8.0	<0.1	<0.1	<0.1	Dry	1005 (r)
	6	<0.1	**10.8**	6.6	<0.1	<0.1	<0.1	0.49	1022 (r)
WS17	1	0.1	2.3	16.2	<0.1	<0.1	<0.1	2.86	1009 (r)
	2	<0.1	2.5	17.5	<0.1	2.0	-0.1	2.89	1008 (r)
	3	0.1	2.9	16.0	<0.1	<0.1	<0.1	2.88	1012 (s)
	4	<0.1	3.6	14.4	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	<0.1	3.7	12.8	1.0	<0.1	-0.1	2.86	1006 (r)
	6	<0.1	3.8	12.5	<0.1	<0.1	<0.1	2.87	1023 (r)
WS18	1	0.0	0.0	21.1	<0.1	<0.1	<0.1	Dry	1009 (r)
	2	0.0	0.1	21.2	<0.1	3.0	<0.1	Dry	1008 (r)
	3	<0.1	4.2	14.9	<0.1	4.0	<0.1	Dry	1012 (s)
	4	<0.1	4.8	15.2	<0.1	4.0	0.1	Dry	1007 (f)
	5	0.0	**5.2**	13.8	<0.1	<0.1	0.1	Dry	1006 (r)
	6	Unable to monitor						Dry	1023 (r)
BH1	1	0.0	4.2	8.3	<0.1	<0.1	<0.1	Dry	1008 (r)
	2	0.0	0.2	20.9	<0.1	<0.1	<0.1	Dry	1007 (r)
	3	<0.1	1.1	19.1	<0.1	1.0	<0.1	9.79	1012 (s)
	4	<0.1	4.7	13.4	<0.1	<0.1	<0.1	9.78	1007 (f)
	5	0.0	**5.3**	6.9	<0.1	<0.1	-0.7	9.83	1007 (r)
	6	0.0	5.2	10.3	<0.1	<0.1	<0.1	9.78	1022 (r)
BH2	1	0.0	0.7	19.9	<0.1	<0.1	0.0	Dry	1008 (r)
	2	0.0	2.7	17.4	<0.1	9.0	0.0	Dry	1008 (r)
	3	<0.1	3.6	16.1	<0.1	2.0	<0.1	Dry	1012 (s)
	4	<0.1	1.5	20.2	<0.1	<0.1	<0.1	Dry	1007 (f)
	5	0.0	3.0	16.6	<0.1	<0.1	0.1	Dry	1005 (r)
	6	0.0	2.3	18.2	<0.1	<0.1	<0.1	Dry	1022 (r)
BH3	1	0.0	1.8	18.2	<0.1	<0.1	0.0	3.85	1007 (r)
	2	0.0	0.2	21.0	<0.1	<0.1	0.0	3.88	1008 (r)
	3	<0.1	2.0	17.9	<0.1	1.0	<0.1	3.85	1012 (s)
	4	<0.1	1.8	19.6	<0.1	<0.1	<0.1	4.88	1007 (f)
	5	0.0	1.9	18.3	<0.1	<0.1	0.0	3.82	1005 (r)
	6	0.0	1.8	17.7	<0.1	<0.1	<0.1	3.75	1022 (r)
BH4	1	0.1	1.8	18.3	<0.1	<0.1	0.0	9.57	1009 (r)
	2	0.0	**6.9**	13.8	<0.1	9.0	-0.2	9.62	1008 (r)
	3	0.1	3.9	17.0	<0.1	<0.1	<0.1	9.61	1012 (s)
	4	<0.1	4.3	17.2	<0.1	<0.1	<0.1	Dry	1007 (s)
	5	0.0	**7.2**	12.5	<0.1	<0.1	0.0	9.09	1006 (r)
	6	0.0	3.2	16.7	<0.1	<0.1	<0.1	9.48	1021 (r)

Table 5-4 Continued: Summary of gas monitoring.

Notes:

If concentrations / flow is zero, then equipment detection limits are assumed.
Table shows peak concentrations of CH_4, CO_2, O_2, H_2S and CO.
Bold where CO_2 exceeds 5%v/v and CH_4 exceeds 1%v/v.
Atmospheric pressure (over past 24hrs): r=rising, f=falling, s=steady

Generally, flow readings across the site during all monitoring visits were very low to negligible. The highest flow reading was recorded in WS1 (4.3l/hr) but this is likely to be associated with barometric pumping and high groundwater level during that visit causing an artificially high flow rate. As no other flow rate above 0.1l/hr was recorded in WS1 on subsequent visits, the elevated flow rate of 4.3l/hr is considered an anomaly has not been used in the derivation of worst case gas screening values.

As expected, locations in the former infilled reservoir recorded the highest levels of carbon dioxide concentrations with WS110, WS14B and WS16 generally being the locations where Carbon Dioxide exceeded 5%v/v with the maximum concentration recorded in WS16 (13%v/v).

Three other locations outside of the infilled reservoir also recorded carbon dioxide above 5%v/v; WS8 on one occasion (6.8%v/v), WS18 on one occasion (5.2%v/v) and BH4 on two occasions (maximum of 7.2%v/v).

Minimal methane was recorded during both visits (maximum 0.1%v/v).

Carbon monoxide was >1ppm in boreholes WS8, WS9, WS10, WS14B, WS15, WS17, WS18, BH2 and BH4. The maximum concentration was recorded as 9ppm (BH2 and BH4).

Only workplace exposure limits defined by the HSE are available for carbon monoxide and are not fully applicable to a residential setting. A Short-Term Exposure Limit of 200ppm (15-minute period) and Long-Term Exposure Limit of 30ppm have been defined (8-hour period).

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

Gas Screening Value

In accordance with CIRIA C665[51], a Gas Screening Value (GSV) may be calculated. Assuming worst-case scenario maximum gas concentrations and flow for each borehole have been used to calculate the GSV. The GSV can be used to determine the characteristic situation (CS).

Table 5-5 shows the maximum GSV for each borehole and the appropriate characteristic situation (based on GSV only).

Boreholes	Max GSV (l/hr)	CS
WS1	0.0048	CS1
WS2	<0.001	CS1
WS3	0.0012	CS1
WS4	0.0015	CS1
WS5	0.010	CS1
WS6	0.0022	CS1
WS8	0.014	CS1
WS9	0.006	CS1
WS10	0.011	CS1
WS11D	0.0018	CS1
WS12	0.0018	CS1
WS13	0.0018	CS1
WS14B	0.012	CS1
WS15	0.0017	CS1
WS16	0.013	CS1
WS17	0.0038	CS1
WS18	0.0052	CS1
BH1	0.0371	CS1
BH2	0.0036	CS1
BH3	0.003	CS1
BH4	0.0144	CS1

Table 5-5: Summary of worst-case Gas Screening Values (GSV) for each location.
Notes:
CS – Characteristic Situation

Based on the worst case GSVs, all locations would be placed within a CS1 scenario, but some monitoring visits had carbon dioxide above 5%v/v

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

However, in accordance with CIRIA C665[52], if carbon dioxide and methane are recorded above 5%v/v and 1%v/v respectively, you should consider upgrading the characteristic situation from CS1 to CS2.

Due to the number of visits with relatively high carbon dioxide (above 5%v/v) around WS16 and in proximity in the former infilled reservoir to the east (proposed POS area), LKC consider that the eastern section of Plot B (shown on Figure 6 (Remediation Plan)) should be treated as CS2.

Carbon dioxide concentrations were also recorded above 5%v/v in WS10 and WS14B in the area of the former infilled reservoir on a number of monitoring visits. These boreholes are located within the POS area where no buildings are proposed and minimal flow readings (maximum 0.2l/hr) identified. Any gasses can freely vent into the atmosphere. Taking this into account and negligible flow rates to drive any gas migration to residential areas outside the POS, LKC do not consider remediation necessary for this area of the site unless development is to take place, in which case CS2 gas protection measures would be considered a conservative measure.

The other locations where carbon dioxide has exceeded 5%v/v (WS8, WS18 and BH4) did so on only one or two occasions with the maximum concentration being 7.2%v/v. Flow rates in these locations were negligible. WS18 and BH4 are located in the south of the site where deeper made ground has been recorded and WS8 also recorded made ground to around 4mbgl. The deeper made ground may account for the occasional slightly elevated CO_2 levels, but no significant putrescible or degradable material has been identified and material appears to be inert. As the levels are only marginally elevated on one or two occasions and the flow rates negligible, LKC do not consider there to be enough evidence to uprate these locations to CS2. Any residual gas from within the made ground does not seem to be generating any significant flow rates.

For added comfort it should be noted RB17[53] states that with regards to carbon dioxide glacial deposits *'can often be recorded up to 15% in monitoring wells. But this does not pose a risk to development'*. Maximum concentration of carbon dioxide was identified at these concentrations. The underlying Glacial Till deposit could generate some of the carbon dioxide (inclusions of coal and silt) and contribute to the gas concentrations, but as stated earlier with limited flow rates to drive any migration and therefore unlikely to be a risk to future residents.

A depletion of oxygen was noted in some boreholes (not consistent), but all had limited flow rates and no significant carbon dioxide gas production (except WS16). This is likely to be an artefact of the drilling process and perched groundwater and not indicative of true in-ground oxygen levels at the site.

Based on the results of the gas monitoring and above assessment, LKC consider the probability of carbon dioxide and methane affecting site users and buildings across a majority of the site to be unlikely and no remediation is required.

However, in a localised area in the east of Plot B, the probability of carbon dioxide affecting site users and buildings is considered to be low but, with a severe consequence, a moderate risk is given. Precautionary gas protection measures in line with CS2 are recommended in buildings in proximity to WS16 due to consistent carbon dioxide >10%v/v (but <15%v/v), as shown in Figure 6.

[52] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[53] CL:AIRE Research Bulletin 17. "A Pragmatic Approach to Ground Gas Risk Assessment". November 2012.

5.4 Controlled Water Assessment

LKC considers the Secondary A Aquifer as the primary receptor.

Groundwater samples were collected from selected boreholes and additional leachate tests were undertaken on soil samples where no groundwater was available for sampling. All analysis sheets for groundwater and leachate tests are presented in Appendix C.

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

- River Basin District Standards[54] and updated Water Framework Directive[55] for Annual Average / Maximum Allowable Concentration Environmental Quality Standards (AA-MAC-EQS) for priority substances (surface water risk).
- 2016 private water supply standards (UKDWS potable)[56].
- 2001 Environment Agency Values for Environmental Quality Standards (EQS) and UK Drinking Water Standard (UKDWS)[57].

With regards to hydrocarbon mixtures (TPHCWG) for UKDWS, LKC will use the CL:AIRE guidance on petroleum hydrocarbons in groundwater[59] based on WHO guidelines.

No criteria values have been presented for surface waters (EQS) except the odour, visual evidence and taste test for fish[60]. However, criteria for each banding has been presented by WHO within the CL:AIRE report for drinking water and will be used in the assessment.

It should be noted that the leaching test is aggressive (de-ionised water) and is not in aqueous equilibrium (steady state) with the solid sample. This may cause rapid dissolution and overestimation of the aqueous phase concentrations compared to groundwater in contact with contaminated soils. Although dissolution may be reduced for highly hydrophobic contaminants[61], such as B(a)P it is likely that the initial leaching will remove the most readily available hydrocarbons and subsequent flushing would reduce the leachable concentrations[62]. Traditionally the leaching test was developed for inorganic constituents and the leaching of organics is poorly understood[63].

Elevated contaminants above limits of detection are presented in Table 5-6 below and all analysis sheets are presented in Appendix E.

[54] Defra (2010). "The River Basin Districts Typology, Standards and Groundwater Threshold Values". Water Framework Directive (England and Wales) Directions 2010.
[55] Defra (2015). " Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015".
[56] Statutory Instruments (2016). "The Private Water Supplies Regulation 2016." No. 614
[57] EA (2002). "Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the Environment Protection Act 1990."
[59] CL:AIRE (2017). "Petroleum Hydrocarbons in Groundwater: Guidance on Assessing Petroleum Hydrocarbons Using Existing Hydrological Risk Assessment Methodologies."
[60] EA (2009). "Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrological Risk Assessment."
[61] EA (1999)."Methodology for the Derivation of Remedial Targets for the Soil and Groundwater to Protect Water Resources." R&D Technical Report, P20
[62] EA (2006)."Remedial targets Methodology: Hydrological Risk Assessment for Land Contamination."
[63] EA (2009). "Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrological Risk Assessment."

Contaminant	Units	No. of samples	Elevated Result	Location	GAC	Source of Criteria
Metals						
Manganese	µg/l	6	380	WS6	10	UKDWS
			630	WS8		
			790	WS4		
			160	WS5		
			590	BH3		
			730	WS1		
TPH						
Aro >EC8-EC10 (ethylbenzene)	µg/l	7	900	WS14B	300	WHO
Aro >EC8-EC10 (xylene)	µg/l	7	730	WS14B	500	WHO
Aro >EC10-EC12	µg/l	7	940	WS14B	90	WHO
Aro >EC12-EC16	µg/l	7	550	WS14B	90	WHO
Aro >EC16-EC21	µg/l	7	940	WS14B	90	WHO
Aro >EC21-EC35	µg/l	7	730	WS14B	90	WHO
Ali >EC8-EC10	µg/l	7	2,300	WS14B	300	WHO
Ali >EC10-EC12	µg/l	7	1,100	WS14B	300	WHO

Table 5-6: Summary of elevated groundwater and leaching test results.
Notes:
[2] = Based on hardness
EQS (2001) and AA / MAC-EQS (2015) = surface water criteria.
UKDWS (2001, 2016) and WHO (2017) = Groundwater criteria (potable supply).
Results above LOD's presented.

Only manganese exceedances were recorded in the groundwater samples tested (maximum concentration of 790µg/l) but this was compared to a UKDWS of 10µg/l which is considered overly conservative for a Secondary A Aquifer with no groundwater abstractions within 250m. These determinands are unlikely to be a detriment to the study site, since values are based on stringent UKDWS and aesthetic consideration. Furthermore, it is well known that manganese exist as colloids which may pass through standard 0.45 micron filters[64,65], thus over estimating dissolved concentrations.

No free product was noted in any water samples

No elevated concentrations of TPH were recorded in any groundwater samples collected but one sample of soil from WS14B subjected to leaching tests recorded elevated TPH fractions when compared to WHO assessment criteria for drinking water. These exceedences are likely to be related to tarmacadam fragments identified in made ground and not true representation of the true groundwater body. Therefore, although exceedences of conservative drinking water standards have been identified, the localised nature of the contamination is not considered to pose a risk to the wider Secondary A Aquifer below the site.

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

[64] Boult, S (1996). "Fluvial Metal Transport Near Sources of Acid Mine Drainage: Relationship of Soluble, Suspended and Deposited Material." *Mineralogical Magazine*. **60**:325-335.
[65] Kennedy, V. Zellweger, GW. Blair, FJ (1974). "Filter Pore Size Effects on the Analysis of Al, Fe, Mn and Ti in Water." Water Resources Research. **10**(4):785-790.

5.5 Additional Risk Assessments

5.5.1 Concrete (Pollutant Linkage 5)

Based on BRE Digest 2005[66] it is unlikely that sulphate resistant concrete will be required across the majority of the site and DS-1 AC-1 is deemed acceptable.

Elevated sulphate was only encountered within TP112 (0.30-1.00m), TP121 (0.20-1.10m) and WS5 (0.00-0.30m). TP121 is located within the area of POS so no development is proposed, therefore the elevation should not pose a risk.

The other locations are within the proposed residential areas. Should this made ground still be in place once reduction of levels has taken place then sulphate resistant concrete DS-2 AC-1s may be required in these areas.

This should be confirmed with the structural engineer.

5.5.2 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 contamination[67]. 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.

The following elevated contaminants were identified:

- Elevated petroleum hydrocarbons in the east of the site.
- Elevated TVOCs (inc. naphthalene) in made ground across the site.

It is likely that barrier pipe will be required across the site subject to the depth and location of the water pipes and in consultation with UU.

It should be noted typical pipework depths are 0.75mbgl to 1.35mbgl. The pipework will likely be laid into the underlying natural strata after levels have been reduced.

Once details of the pipeline location and depths are known a UU Risk Assessment should be undertaken.

At this stage, the probability of organic contaminants affecting potable water pipes is likely. Given the consequence is considered to be medium, the risk (pollutant linkage 6) is anticipated to be moderate risk and remediation (i.e. barrier pipe) is likely to be required (subject to further risk assessment).

5.5.3 Phytotoxicity (Pollutant Linkage 7)

Soil results were compared to phytotoxic guideline values as outlined in BS3882[68].

Elevated zinc (maximum concentration 350mg/kg) and copper (maximum concentration 480mg/kg) were identified. No evidence of vegetation stress was identified onsite and even though there were some exceedances of phytotoxic metals it is unlikely that specific remediation is required to remove this pollutant linkage, The

[66] BRE (2005). "Concrete in Aggressive Ground." Special Digest 1.
[67] UU(2011). "United Utilities Water Supplementary Guidance for the Selection of Water Pipes in Land Potentially Affected by Contamination."
[68] BS (2015). "Specifications for Topsoil and Requirements for Use." BS3882:2015.

probability of phytotoxic contaminants affecting vegetation is considered to be low. With a minor consequence, the risk (pollutant linkage 7) is anticipated to be very low.

In addition to the above, the characteristics of the made ground should also be taken into account if it is to be used as a topsoil / growing medium for flora. The material should be assessed against the parameters outlined in Table 1 of BS3882 (not included within this assessment). Made ground with undesirable material (e.g. glass, brick) was noted at shallow depth in localised areas of the site / across the site. Irrespective of the contamination risk, this material should not be used as topsoil.

5.6 Revised Contamination Conceptual Model

The preliminary contamination conceptual model (Table 2-6) has been revised following the risk assessments undertaken in Sections 5.1-5.5. 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 5-7.

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 6.

Please note further investigation is required in occupied area of the site once building have been demolished.

Pollutant Linkage	Pathway	Receptor	Contaminant	Probability	Consequence	Risk	Assessment
PL1	– Dermal contact. – Inhalation of soil, fibres and dust. – Ingestion of soils, dust, vegetables, soil attached to vegetables. – Windblown dust.	– Current residents. – Future residents. – Site users. – Offsite receptors.	<u>Residential with Private Gardens</u> – Arsenic, lead, B(a)P.	Likely	Medium	**Moderate**	– Likely probability as elevated metals (arsenic and lead) and PAHs identified in the made ground which could come into contact with site users in gardens / soft landscaping areas. – **Recommendation**[*1]**:** Remediation required. Likely to include an environmental cover system in gardens where residential houses are present.
			<u>Residential with Private Gardens</u> -Heavy end HC -ACM chrysotile.	Low	Medium	Moderate / **Low**	– Low probability as limited heavy end hydrocarbons encountered and related to discrete cobble with bitumen coating and not representative of made ground matric. – ACM identified at Limits of Detection (LOD) as chrysotile in one location within landscaped areas. Visible pieces of ACM identified in a small number of locations. -Risk assessed as low. **-Recommendation**[*1]**:** Removal of the mound. Hand picking of visible ACM pieces. Environmental cover system as above for metals and PAHs will be sufficient in residential gardens.
			<u>Apartment Blocks, small verges (no gardens) and POS</u>	Unlikely	Medium	**Low**	– No elevations identified within proposed apartment block areas. – Localised elevations in POS area unlikely to pose a risk based on limited end use anticipated and nature of ground conditions. – **Recommendation:** Nominal 150mm topsoil layer in shared soft landscaping within apartment blocks and small verges. No specific remediation required in the POS area.
			<u>South East</u> Metals, PAHs, ACM (made ground) PCBs and transistor oils (electricity sub station)	Likely	Medium	**Moderate**	– Risk cannot be confirmed at this stage until investigation has taken place in southeast of site currently covered by occupied houses. – **Recommendation**: Intrusive investigation required once area has been demolished.
PL2	– Inhalation of vapours. – Migration through permeable strata and preferential pathways.	– Current residents. – Future residents. – Site users.	Volatile Contaminants: - Naphthalene	Unlikely	Medium	**Low**	– One elevated naphthalene results encountered, but marginal exceedance. – **Recommendation:** No remediation required.

Table 5-7: Revised Contamination Conceptual Model.

<u>Notes</u>

[*1] The conceptual model only takes into consideration the future use of the site and long-term exposure. Consideration should also be given to the short-term exposure of construction workers and nearby land users to ACM containing soils during groundworks. This is discussed further in Section 8.

Pollutant Linkage	Pathway	Receptor	Contaminant	Probability	Consequence	Risk	Assessment
PL3	– Inhalation of gas. – Migration through permeable strata and preferential pathways. – Explosion in confined spaces (methane only).	– Current residents. – Future residents. – Buildings. – Offsite land users.	- Carbon dioxide (Area of Plot B)	Low Likelihood	Severe	**Moderate (Localised)**	– Elevated carbon dioxide identified (max. 16%v/v) in area of former infilled reservoir. Sufficient evidence to uprate the east of Plot B to CS2 from CS1. – **Recommendation:** Gas protection measures in line with CS2 required in the east of Plot B (see Figure 6).
			- Carbon Dioxide and methane (remainder of site)	Unlikely	Severe	Moderate / **Low**	– Remainder of site is within CS1 scenario and no evidence (e.g significant elevated gas concentrations or flow rates) to uprate the rest of the site to CS2. – Low risk assumed based on gas concentrations and flow rates being low to very low across most of the site. – **Recommendation:** No gas protection measures required.
PL4	– Surface Run-off. – Migration through permeable strata and preferential pathways – Perched waters migration.	– Groundwater (Secondary A Aquifer). – Surface water (Moss Brook (Culverted)).	Mobile contaminants: - Metals and PAHs.	Unlikely	Medium	**Low**	– Only elevated manganese recorded in groundwater samples when compared to relevant assessment criteria. – Very localised leachable hydrocarbon fractions relating to tarmacadam fragments in made ground. Not considered to pose a significant risk to wider groundwater. – Controlled waters sensitivity is considered to be low. – **Recommendation**: No remediation required.
PL5	– Sulphate attack on concrete.	– Building structure.	– Sulphate	Assessed in geotechnical report			– Elevated sulphate sporadic across the site. – **Recommendation**: Worst case sulphate resistant concrete to DC-2 AC-1s required.
PL6	– Ingestion of tainted water supply.	– Future site users (via potable water).	Organic Contaminants: – Naphthalene, hydrocarbons.	Likely	Medium	**Moderate**	– Likely probability as elevated organic contaminants encountered which could permeate water pipes and contaminate water supply. – **Recommendation:** UU risk assessment should be undertaken. Barrier piping likely to be required.
PL7	– Direct Contact (plant uptake).	– Flora.	Phytotoxic Contaminants: – Zinc, copper	Low	Minor	**Very Low**	– Elevated zinc and copper identified, which may be taken up by flora in soft landscaping / gardens. However, no evidence of vegetative stress identified. – **Recommendation:** No specific remediation required, but nominal clean cover will be sufficient.

Table 5-7 Continued: Revised Contamination Conceptual Model.

6 Waste Disposal Assessment

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

As an initial screen the soil results were inputted into Hazwaste Online™. This is a web-based facility that allows an assessment waste as either hazardous or non-hazardous waste based on relevant guidance and legislation[69, 70 ,71,72 ,73 ,74, 75, 76, 77].

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

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

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

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

However, 5 samples tested are classified as HAZARDOUS WASTE. The results for these samples are summarised in Table 6-1.

Sampling Location	LoW Code	Hazard (Risk Phrase)	Contaminants
WS5	17 05 03	HP8 (Corrosive)	pH
TP119	17-05-03	HP7 (Carcinogenic) HP11 (Mutagenic)	TPH (C6-40) petroleum group
TP117	17-05-03	HP7 (Carcinogenic) HP11 (Mutagenic)	TPH (C6-40) petroleum group
WS14B	17-05-03	HP7 (Carcinogenic) HP11 (Mutagenic)	TPH (C6-40) petroleum group

Table 6-1: Summary of Hazwaste Online ™ findings.

Based on individual locations hazardous waste has been identified. The soil in the east of the site, should be classified as HAZARDOUS WASTE based on carcinogenicity, mutagenicity, pH and LoW code "17-05-03 - soil and stones containing hazardous substances". This will be related to any tarmacadam fragments and cobble setts and therefore a bitumen source and not fuel. If these can be separated and re-tested along with any handpicking of visible ACM then the risk maybe reduced to non-hazardous waste. In addition, the mound may need further testing before disposal as LOD ACM was identified in one sample.

[69] EA (2018). "Guidance on the Classification and Assessment of Waste (1st Edition v1.1)". Technical Guidance WM3.
[70] CLP Regulation - Regulation 1272/2008/EC of 16 December 2008.
[71] 1st ATP - Regulation 790/2009/EC of 10 August 2009
[72] Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
[73] WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
[74] Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
[75] 13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
[76] POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
[77] 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

6.1 Waste Acceptance Criteria (WAC) Testing

Waste Acceptance Criteria (WAC) testing was also undertaken on 9no. samples representative of material likely to be earmarked for off-site disposal. WAC test results are included in Appendix C.

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

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

The above potential designation if disposed to a licenced landfill are summarised in Table 6-2. It should be noted that the licenced landfill operator would determine the designation, which may differ to this assessment.

Sampling Location	Soil Designation (Haz-Waste)	Potential Landfill Designation			Designation
		Inert	SNRH	Haz.	
TP119/TP113	Hazardous	-	-	x	Hazardous landfill due to TOC, but SNRH if allow 2 x TOC.
TP110/TP108 0.1-1.1mbgl	Non-Hazardous	-	x	-	Non-hazardous but inert if allow 2x TOC and marginal fluoride exceedance.
TP101 0.0-1.0mbgl	Non-Hazardous	-	x	-	Non-hazardous but inert if allow 2x TOC.
TP104 0.70-1.30mbgl	Non-Hazardous		x		Non-hazardous but inert if allow 2x TOC.
TP105 1.10-2.1mbgl	Non-Hazardous	-	x	-	Non-hazardous but inert if allow 2x TOC.
TP115 0.20-1.20mbgl	Non-Hazardous	x	-	-	Inert
TP124 0.10-1.10mbgl	Non-Hazardous	x	-	-	Inert
TP128 0.50-0.9mbgl	Non-Hazardous	-	-	x	Hazardous landfill due to TOC.
TP131 0.40-1.0mbgl	Non-Hazardous		x		Non-hazardous but inert if allow 2x TOC.

Table 6-2: Summary of potential designations.

A number of WAC samples from the site fail the inert waste landfill criteria due to elevated TOC concentrations. Environment Agency[78] guidance includes a potential derogation to allow soils up to two times the TOC limits to be deposited at landfills for inert waste in certain circumstances.

Landfill operators wishing to pursue this approach will need to apply to vary their permit. The application must be waste-specific and must specify what limit of TOC is being applied for. It must include a risk assessment considering whether the landfill is designed such that it can cope with any gas and/or leachate that may be produced as a result of accepting this waste.

The producer will need to make a case for an increased TOC up to 2 x the WAC limit.

[78] EA 2010 "Waste Acceptance at Landfills" Guidance on Waste Acceptance Procedures and Criteria.

7 Conclusions

7.1 Contamination Assessment

A revised contamination conceptual model has been produced by LKC which is summarised in Table 7-1 below (more detailed model provided in Section 5).

Pollutant Linkage		Risk	Recommendations
1	Contaminants posing a risk to site users future residents, site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	**Moderate** **Residential with private gardens**	– Moderate risk as elevated metals (arsenic and lead) and PAHs identified in the made ground which could come into contact with site users in gardens / soft landscaping areas. – **Recommendation:** Remediation required to include an environmental cover system in gardens where residential houses are present.
		Moderate / **Low** **Residential with private gardens**	– Low risk as limited heavy end hydrocarbons encountered and related to discrete cobble with bitumen coating and not representative of made ground matric. – ACM identified at Limits of Detection (LOD) as chrysotile in one location within landscaped areas. Visible pieces of ACM identified in a small number of locations. -Low risk assumed. – **Recommendation:** Removal of the mound. Hand picking of visible ACM pieces. Environmental cover system as above for metals and PAHs will be sufficient in residential gardens.
		Low **Apartment Block, small verges (no gardens) and POS**	– Low risk as no elevations identified within proposed apartment block areas. – Localised elevations in POS area unlikely to pose a risk based on limited end use anticipated and nature of ground conditions. – **Recommendation:** Nominal 150mm topsoil layer in shared soft landscaping within apartment blocks and small verges. No specific remediation required in the POS area.
		Moderate **SE occupied site**	– Moderate risk for heavy metals, PAHs and localised PCBs. Risk cannot be confirmed at this stage until investigation has taken place in southeast of site currently covered by occupied houses. – **Recommendation**: Intrusive investigation required once area has been demolished.
2	Volatile contaminants posing a risk to site users future site users via the inhalation of vapours.	**Low**	– No significantly elevated volatile contamination identified. **Recommendations:** No remediation required.
3	Gas posing a risk to buildings and site users buildings and site users via the migration of gas into building causing explosion and asphyxiation.	**Moderate** **East of Plot B**	– Elevated carbon dioxide identified (max. 16%v/v) in area of former infilled reservoir. Sufficient evidence to uprate the east of Plot B to CS2 from CS1. – **Recommendation:** Gas protection measures in line with CS2 required in the east of Plot B (see Figure 6).
		Moderate / **Low** **Remainder of occupied site**	– Remainder of site is within CS1 scenario and no evidence (e.g significant elevated gas concentrations or flow rates) to uprate the rest of the site to CS2. – Low risk assumed based on gas concentrations and flow rates being low to very low across most of the site. – **Recommendation:** No gas protection measures required

Table 7-1: Summary Risk Table.

Pollutant Linkage		Risk	Recommendations
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	- Only elevated manganese recorded in groundwater samples when compared to relevant assessment criteria. - Very localised leachable hydrocarbon fractions relating to tarmacadam fragments in made ground. Not considered to pose a significant risk to wider groundwater. - **Recommendation**: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	-Assessed in geotechnical report. Elevated sulphate sporadic across the site. **-Recommendation**: Worst case sulphate resistant concrete to DC-2 AC-1s required.	
6	Organic contaminants posing a risk to water pipes.	**Moderate**	- Organic contamination identified at potable pipe depth of 0.75-1.35mbgl. - **Recommendations:** UU risk assessment to be completed. The site will likely require barrier piping.
7	Phytotoxic metals posing a risk to flora via root uptake.	**Very Low**	- Elevated contaminants identified, but no vegetative stress. - **Recommendations:** No specific remediation required, but nominal clean cover will be sufficient.

Table 7-1 Continued: Summary Risk Table.

Waste Classification

The majority of the made ground onsite is characterised as Non-Hazardous waste only if ACM is not visible. The exception is soil in the east of the site which could be classed as Hazardous waste. This will be related to any tarmacadam fragments and cobble setts. If these can be separated and re-tested along with any handpicking of visible ACM then the risk maybe reduced to non-hazardous waste. In addition, the mound may need further testing before disposal as LOD ACM was identified in one sample.

Remedial recommendations are presented in Section 8.

Soakaways

Soakaways failed in the clay onsite. Therefore, due to underlying clay and deep made ground soakaways are unlikely to feasible for this site.

8 Recommendations and Remedial Strategy

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

8.1 Remediation and Validation Recommendations

Table 8-1 details the further works and remedial recommendations / requirements. The table shows work required post-demolition of building(s), pre-construction (i.e. during earthworks) and during / post construction.

Table 8-2 provides information on considerations during and after construction.

Phase	PL	Remediation Requirements	Validation Requirements
Pre-Construction	All	Post-demolition Trial Pitting in SE This is recommended to confirm ground conditions below the current buildings and allow delineation of areas of concern. This should allow a more targeted remediation strategy to be completed. This work will also provide more geotechnical information for foundation design.	N/A (Investigation Report will be provided with an updated Remediation Strategy).
		The bunded material will need further testing before disposal in relation to LOD ACM identified in one sample (assumed disposal as site is to be reduced in levels). Appropriate asbestos management will be required by the Remediation Contractor before work commences.	Report results and provide disposal tickets as part of wider earthwork removal offsite.
	ALL	Earthworks Inspections / Unexpected Contamination 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. Material should be stockpiled and quarantined on visqueen and covered.	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.
On / Post--Construction	3	Gas Protection Measures required in Localised Areas (East of Plot B – see Figure 6) In line with CS2 as per UK guidance[79,80]. This is likely to / should include: • Passive subfloor or active subfloor ventilation system. • Methane and carbon dioxide resistant membrane installed as per manufacturer's instructions. • Ventilation of confined spaces within the building. • Well-constructed reinforced suspended, raft or cast in situ ground slab. • Minimum penetration of ground slab by services. • All joints and penetrations to be sealed. Depending on the type of building and foundation design the protection measures can vary. The gas protection measures will be detailed and approved with the Local Authority once the foundation design has been confirmed.	Supply and review of foundation designs. Photographic evidence of sub-floor void, ventilation and suitably sealed gas membrane. Validation of gas protection measures should be in line with CIRIA 735[81]

Table 8-1: Remediation and validation requirements
Note: PL = Pollutant Linkage

[79] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665
[80] BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for new buildings." BS8485:2015.
[81] CIRIA (2014). "Good Practice on the Testing and Verification of Protection Systems for Building Against Hazardous Ground Gas". CIRIA C735.

Phase	PL	Remediation Requirements	Validation Requirements
On / Post--Construction	1 and 7	Environmental Cover System (Residential with garden areas only- see Figure 6) As made ground is relatively deep, it is unlikely to be viable to remove the contaminated soils. Therefore, an environmental cover system is recommended. The environmental cover system should be as follows: **Private Back Gardens:** **600mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 500mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 600mm comprising clean inert fill and sufficient topsoil for a growing medium. **Private Front Gardens:** **450mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 350mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 300mm comprising clean inert fill and sufficient topsoil for a growing medium. The subsoil layer can be replaced by additional topsoil. **Landscaping Around Apartment Blocks, small verges around duplex buildings and POS.** Topsoil Growing Medium Although no contamination were at levels or in a matrix that could significantly harm key receptors in areas of landscaping around the apartment blocks, POS and small verges around the duplex buildings, the existing made ground is not expected to be a suitable growing medium given the nature of the soil and the undesirable material present (ash and brick). A minimal topsoil cover of approximately 150mm is recommended	Measuring depth of environmental cover system using a staff and providing photographic evidence. Photographic evidence of the granular physical break or geotextile layer will also be collected. Chemical validation of imported soils: See Table 8-2.
	5	Sulphate Resistant Concrete Sulphate Resistant Concrete in line with DS-2 AC-1s may be required in localised areas.	N/A
	6	Potable Water Pipes It is recommended that a Water Pipeline Assessment is undertaken once the location and depth of potable water pipes are known. It is likely that barrier pipe will be required.	Delivery Notes of Pipe Material or Photographs of the Installed Pipe.

Table 8-1 (continued): Further work, remediation and validation requirements
Notes: See Table 5-7 for pollutant linkage (PL) details.

Other Considerations
Grubbing Out of In-Ground Structures It is recommended that in-ground structures are grubbed out as part of the groundworks
Re-use of site won material (LKC understand site levels will be reduced so may not be required) To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used): 5,000 tonnes (*c.* 2,500m^3) treatment of crushed concrete / stone. 1,000 tonnes (*c.* 500^3) use of non-hazardous soil 5,000 tonnes (*c.* 2,500m^3) use of clays, sand, gravel, brick, concrete, stone etc. 50,000 tonnes (*c.* 25,000m^3) use of bitumous material to be used in roadways. A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered **before** material movement starts onsite. If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'. For all the above material will need to be tested at the rate and analytical suites presented in Table 8-3.
Asbestos Management Plan Due to the presence of asbestos containing material (1/54 in soil and 3no. visible pieces), it is recommended that additional precautions are taken during site clearance, earthworks and construction in the area of concern. The presence of asbestos in the made ground at the site presents a potential risk of generation of airborne fibres if this material is disturbed, such as for excavations to construct new foundations. This risk can be managed by careful procedures and site monitoring to reduce the risk of airborne fibres, such as wetting techniques and it is recommended that an appropriate 'Asbestos Management Strategy' is developed and adopted for all intrusive ground works which disturb the made ground in the area of concern. This should be carried out in line with CIRIA C733. This may include asbestos awareness training for all site staff, provision of suitable personal and respiratory protective equipment and air monitoring. With regards to cement bound asbestos, this can be handpicked, doubled bagged and disposed of appropriately to a licenced landfill. Guidance on removing asbestos cement is described in HSE (2012). If ACM is identified in soil arisings then soil should be placed directly into covered skips and disposed of at a suitable licenced landfill, after further testing to quantify the extent of asbestos contamination of the soils. It should be considered that blue asbestos is notifiable (if present) and must be removed by a licenced contractor. Given that visible pieces of ACM were identified in TP104, TP18 and TP112, it is recommended that hand picking of the ACM is undertaken in these areas. The ACM should be doubled bagged and disposed of accordingly. The JIWG model (presented in Appendix J) identified this work to be classed as **Non-Licensed Work (basic RPE and localised dust suppression)** for the identified pieces of chrysotile cement and board. The soil ACM at LOD was considered a negligible risk, where CAR did not apply.

Table 8-2: Further considerations.

Other Considerations
Health and Safety Considerations In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance[85]) should be adopted by all workers involved with site enabling and construction works.
Piling in Contaminated Land It is understood that the building will be piled. This may provide a preferential pathway for contaminants to the Secondary B Aquifer. Once the method of piling has been determined, good practice for the drilling of piles on contaminated sites should be adhered to, such as guidance provided by the Environment Agency.
Asbestos Survey (areas of occupied residential housing) A Pre-Demolition and Major Refurbishment Asbestos Survey should be undertaken, and any ACMs removed and properly disposed of, prior to the demolition of the existing buildings, by a suitably qualified professional.

Table 8-2 (continued): Further considerations.

8.2 Validation of Subsoil / Topsoil

Chemical validation of all imported soils to be used on site in gardens and 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 is presented in Table 8-3, based on MCC 'Guidelines to Developer' (2016). LKC however consider no testing, but proof of provenance for natural virgin quarried material.

Ideally, the material should be sampled at source to prevent double handling if soil fails, with confirmatory sampling undertaken on importation to site. However, where this is not possible then material imported should be segregated based on source and soil type. Validation samples should be taken prior to placement in gardens / soft landscaping to ensure suitability for use.

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

Table 8-3: Sampling requirements for imported soils.

Notes:

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

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

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

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

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

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882[86]). LKC advise this information is provided by the supplier before material is imported onto site.

Imported material to be used in gardens will be compared against residential with plant uptake criteria (as used in the contamination risk assessment (Section 5-1). Appropriate remedial target criteria are presented in Appendix G.

8.3 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:

- Further site investigation and risk assessment within the area of the occupied houses, when demolished.
- Validation of gas protection measures installed or assessment of the gas risk after monitoring.
- Provision of waste transfer documents.
- Environmental capping layer: Validation of environmental cover system.
- Verification testing of all imported soil for garden and soft landscaping areas.
- Information on the installation of protective pipes and / or sterile trenches.
- Details of any unexpected contamination identified onsite, suitably risk assessed and / or validated.

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

[86] BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

Figures

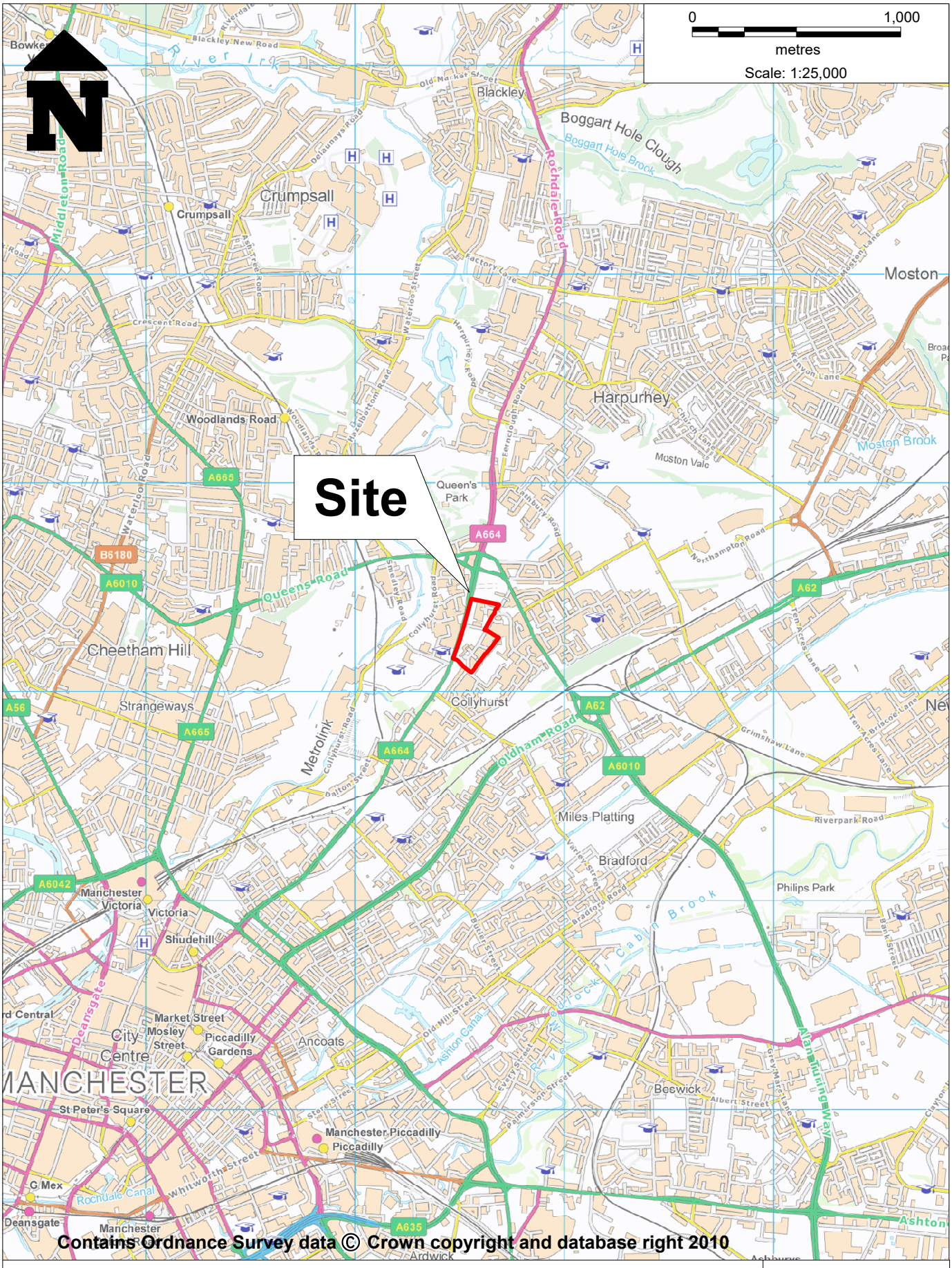
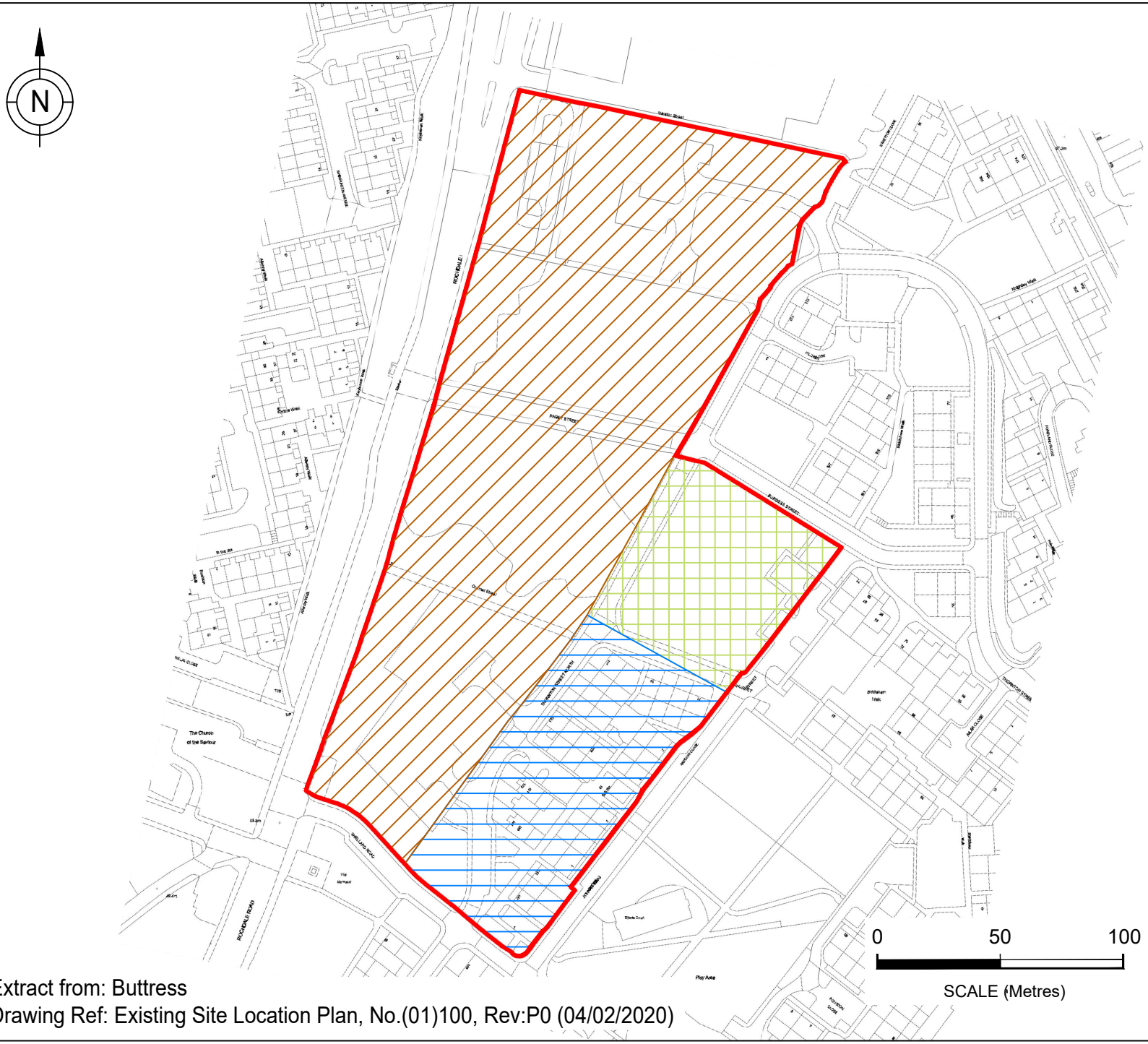


Figure 1: Site Location Plan, Collyhurst Village, Manchester

Drawn: August 2020 Scale: 1:25,000 @ A4 (see scale bar)

LK CONSULT LIMITED



KEY

- Planning Boundary
- Current Development Area
- Public Open Space
- To be Developed in Future Once Unoccupied

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

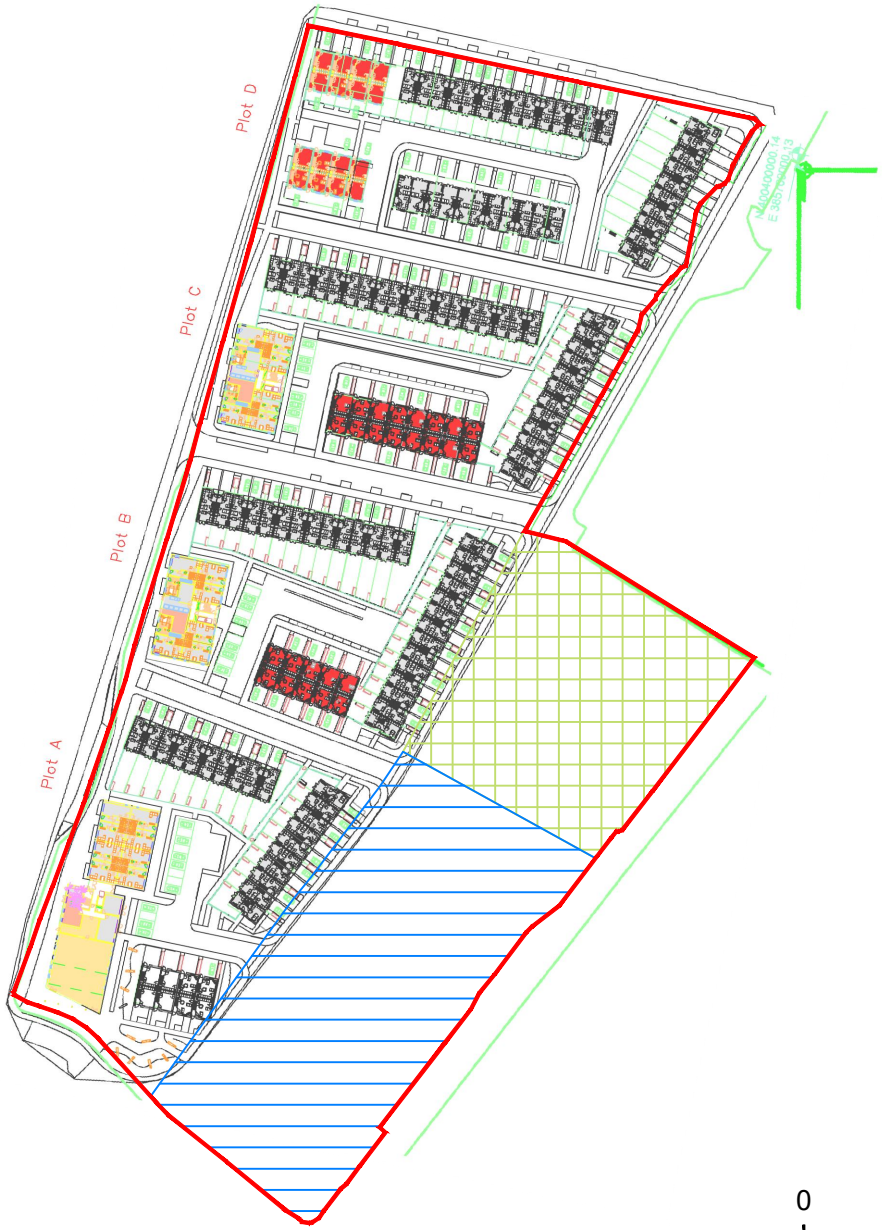
LK CONSULT LIMITED

Client:	Civic Engineers
Site:	Collyhurst Village, Manchester
Title:	Site Boundary Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	2	

Drawn By:	Checked By:	Drawn:
AC	CH	Oct 2020

Extract from: Buttress
Drawing Ref: Existing Site Location Plan, No.(01)100, Rev:P0 (04/02/2020)



0 50 100

SCALE (Metres)

KEY

- Site Boundary
- Public Open Space
- To be Developed in Future Once Unoccupied

Housetypes:

2B3P – Apt	20
2B4P – Apt	17
2B4P – Duplex	24
2B4P – TH	50
3B4P – Apt	2
3B5P – Duplex	6
3B5P – Apt	15
3B5P – TH	88
3B6P – Duplex	0
3B6P – Apt	0
4B6P – TH	18
	240

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LK CONSULT LIMITED

Client: Civic Engineers

Site: Collyhurst Village, Manchester

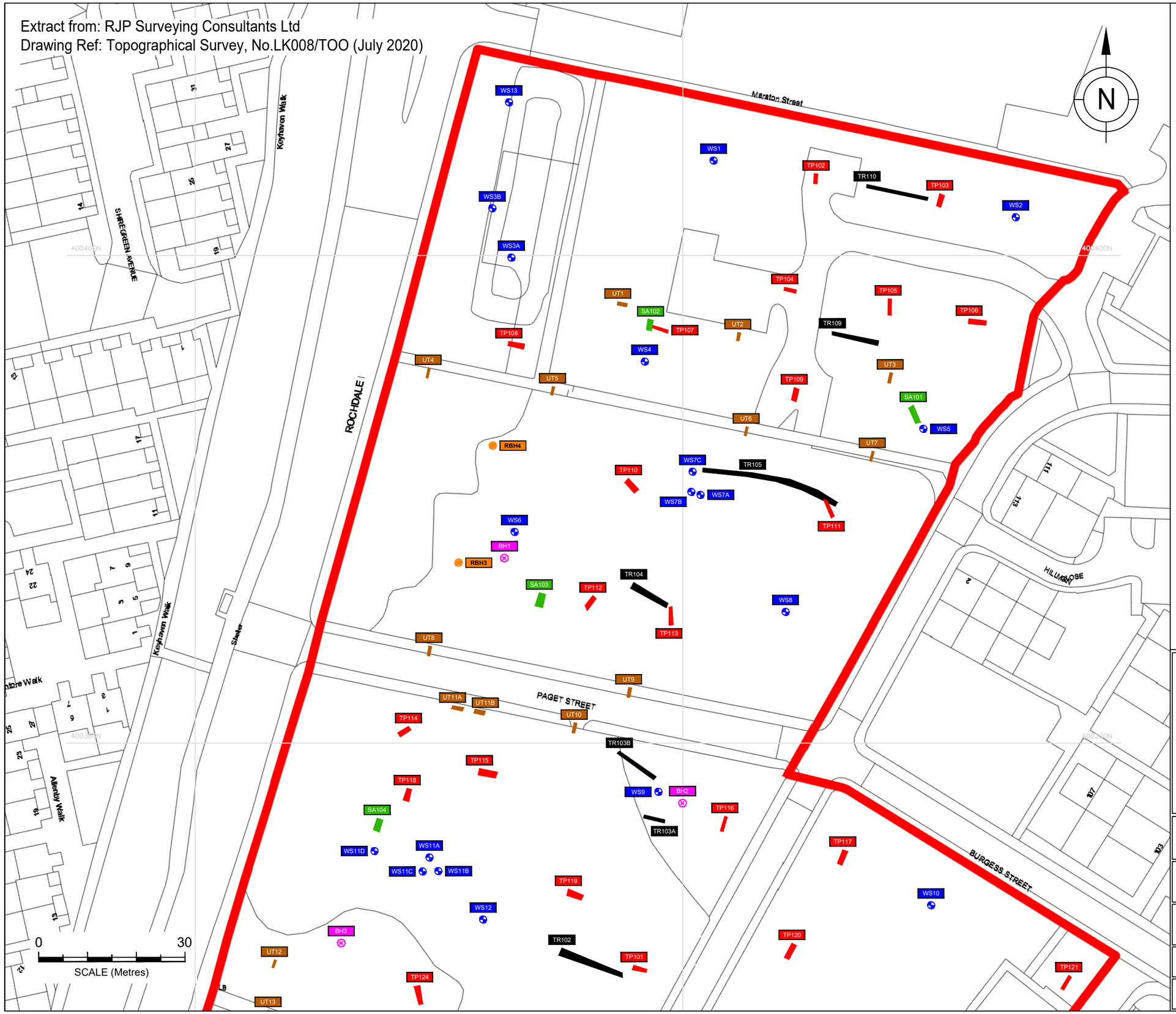
Title: Proposed Development Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	3	

Drawn By:	Checked By:	Drawn:
AC	HM	Aug 2020

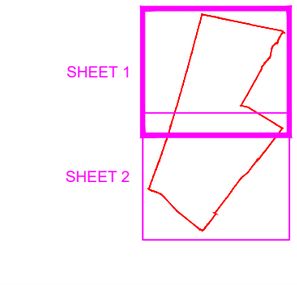
Extract from: Buttress
Drawing Ref: Collyhurst Village Housetype Plan (19/08/2020)

Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)



KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)
- Rotary Borehole (RBH)



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LK CONSULT LIMITED

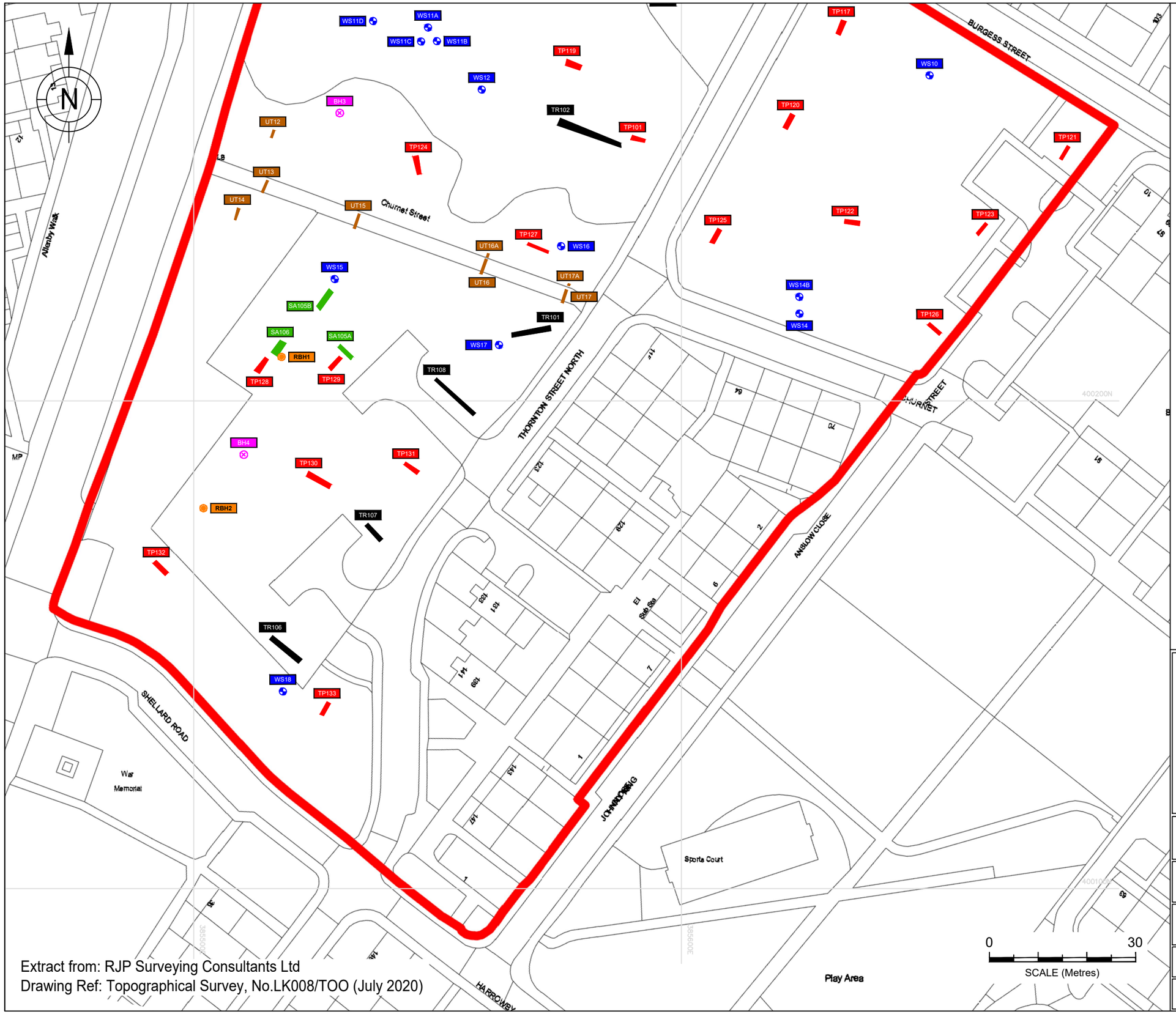
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Site Investigation Location Plan (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	4	

Drawn By:	Checked By:	Drawn:
AC	HM	Aug 2020



Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)

KEY

- Site Boundary
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- Trial Pit (TP)
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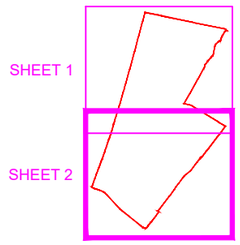
- Rotary Borehole (RBH)



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LK CONSULT LIMITED

Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Site Investigation Location Plan (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	4	

Drawn By:	Checked By:	Drawn:
AC	HM	Aug 2020

Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)

Public Open Space
(number in box = GAC)

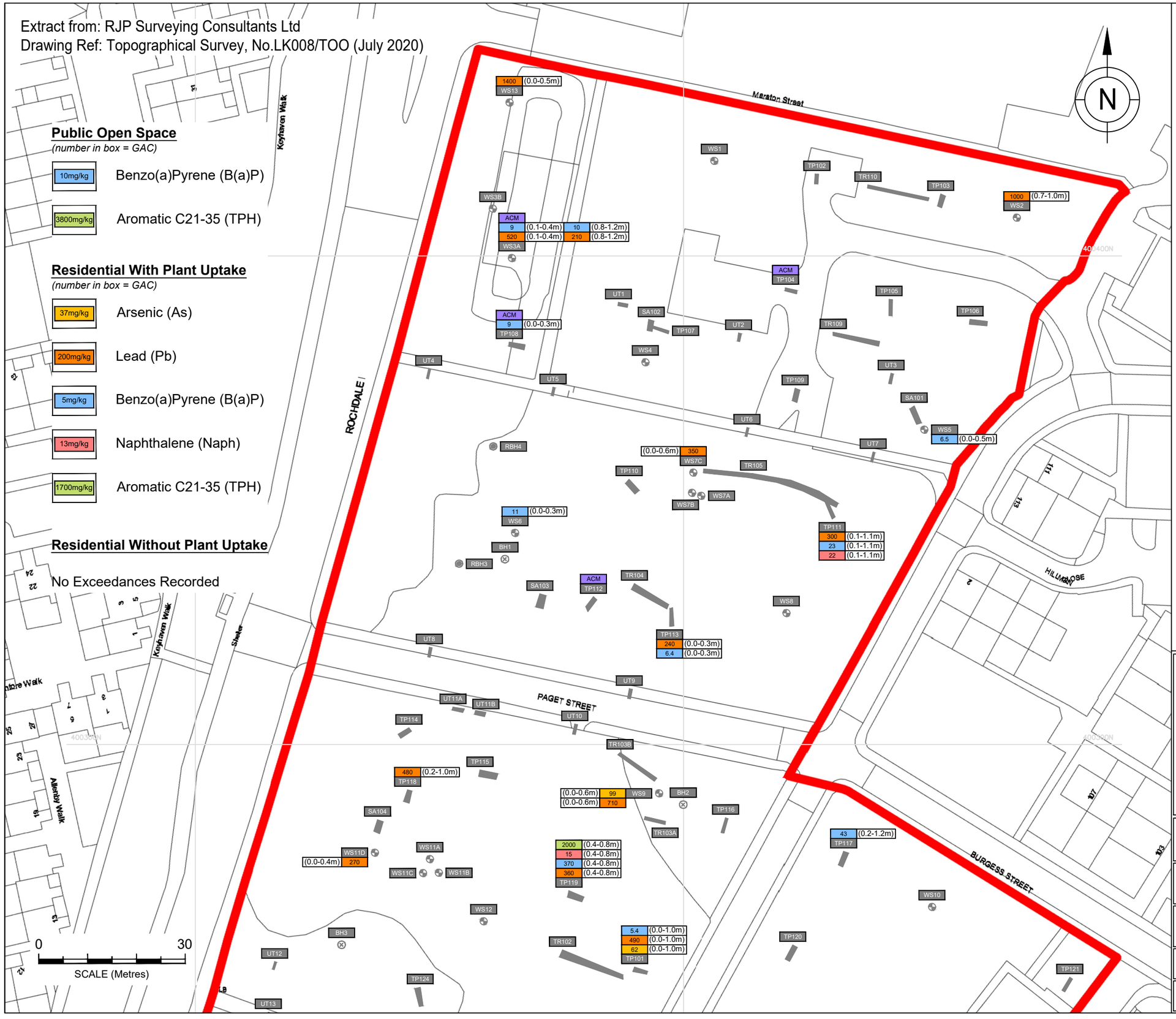
- 10mg/kg — Benzo(a)Pyrene (B(a)P)
- 3800mg/kg — Aromatic C21-35 (TPH)

Residential With Plant Uptake
(number in box = GAC)

- 37mg/kg — Arsenic (As)
- 200mg/kg — Lead (Pb)
- 5mg/kg — Benzo(a)Pyrene (B(a)P)
- 13mg/kg — Naphthalene (Naph)
- 1700mg/kg — Aromatic C21-35 (TPH)

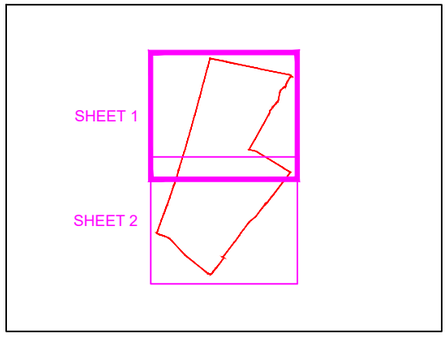
Residential Without Plant Uptake

No Exceedances Recorded



KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)
- Rotary Borehole (RBH)
- ACM — Asbestos-Containing Material (ACM)



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LK CONSULT LIMITED

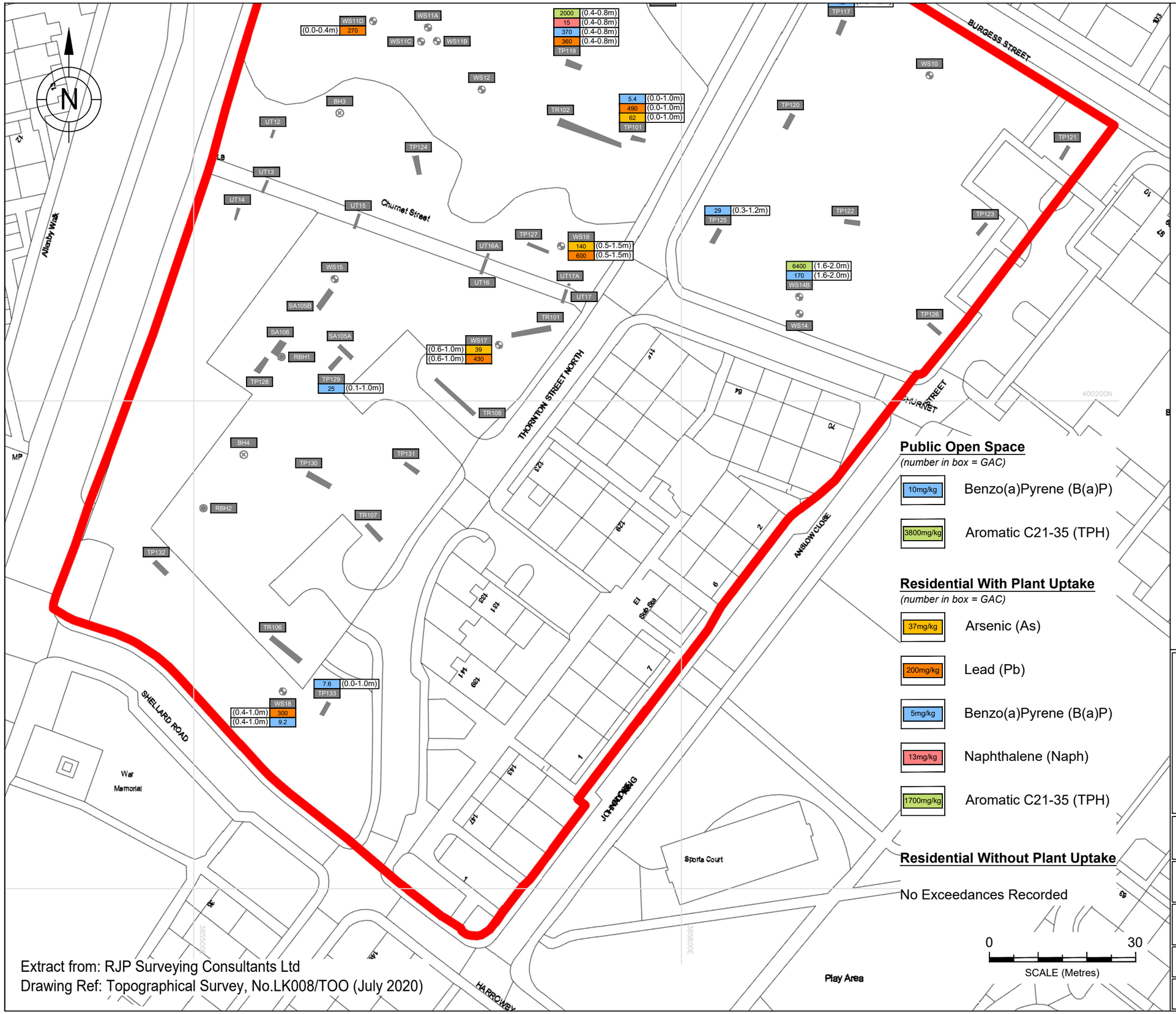
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Elevated Contaminants Plan (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	5	

Drawn By:	Checked By:	Drawn:
AC	CH	Oct 2020



Public Open Space

(number in box = GAC)

10mg/kg	Benzo(a)Pyrene (B(a)P)
3800mg/kg	Aromatic C21-35 (TPH)

Residential With Plant Uptake

(number in box = GAC)

37mg/kg	Arsenic (As)
200mg/kg	Lead (Pb)
5mg/kg	Benzo(a)Pyrene (B(a)P)
13mg/kg	Naphthalene (Naph)
1700mg/kg	Aromatic C21-35 (TPH)

Residential Without Plant Uptake

No Exceedances Recorded

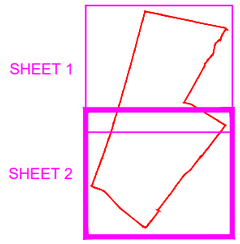
0 30

SCALE (Metres)

Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No.LK008/TOO (July 2020)

KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)
- Rotary Borehole (RBH)
- ACM — Asbestos-Containing Material (ACM)



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.

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Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Elevated Contaminants Plan (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	5	

Drawn By:	Checked By:	Drawn:
AC	CH	Oct 2020

Extract from: Buttress
Drawing Ref: Collyhurst Village Housetype Plan (19/08/2020)

Remediation Zones

- Cover System Required (450mm Front Gardens, 600mm Rear Gardens)
- Characteristic Situation 2 (CS2) Gas Protection Measures Required
- Site Investigation Required (Occupied)

NOTE:

Nominal 150mm topsoil cover required in any soft landscaping in areas not requiring cover system.

0 30
SCALE (Metres)

KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
- Utility Trench (UT)
- Window Sample Borehole (WS)
- Rotary Borehole (RBH)

SHEET 1
SHEET 2

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

LK CONSULT LIMITED

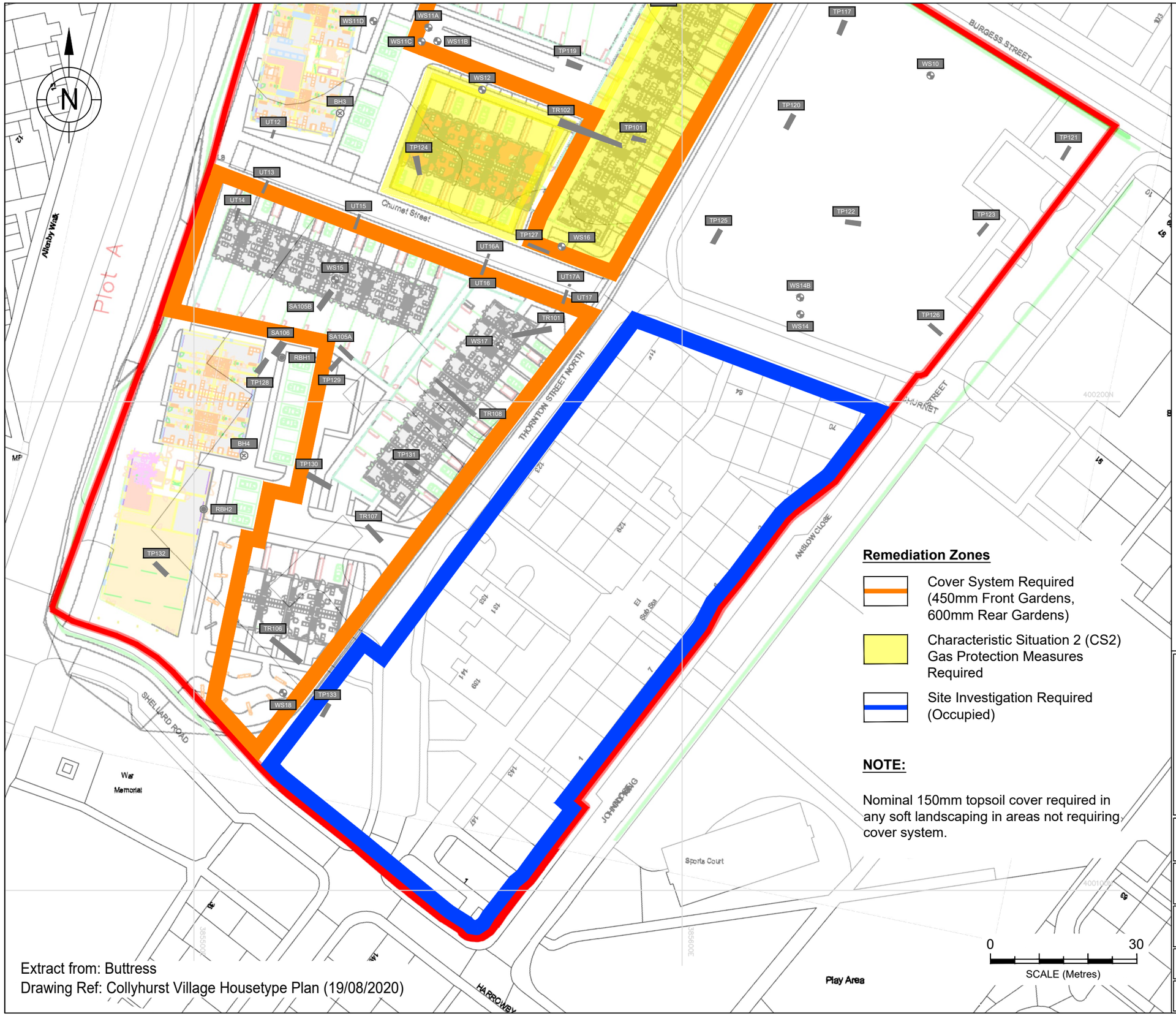
Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Remediation Zoning Plan (Sheet 1)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	6	

Drawn By:	Checked By:	Drawn:
AC	HM	Oct 2020



KEY

- Site Boundary
- Cable Percussive Borehole (BH)
- Trial Pit with Soakaway Testing (SA)
- Trial Pit (TP)
- Trial Trench (TR)
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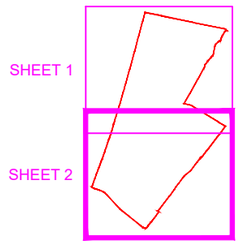

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing 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.

Remediation Zones

- Cover System Required (450mm Front Gardens, 600mm Rear Gardens)
- Characteristic Situation 2 (CS2) Gas Protection Measures Required
- Site Investigation Required (Occupied)

NOTE:

Nominal 150mm topsoil cover required in any soft landscaping in areas not requiring cover system.

Extract from: Buttress
Drawing Ref: Collyhurst Village Housetype Plan (19/08/2020)

LK CONSULT LIMITED

Client: Civic Engineers

Site: Collyhurst Village, Manchester

Title: Remediation Zoning Plan (Sheet 2)

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar	6	

Drawn By:	Checked By:	Drawn:
AC	HM	Oct 2020

Appendix A

Risk Matrix

Risk Evaluation

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552[87]. It involves the classification of the:

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

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

Table A. Classification of Consequence

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

Table B. Classification of Probability.

[87] 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 sever harm to a designated receptor is currently happening. - This risk, if realised, is likely to results 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 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.

Appendix B

Profile Logs

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **RBH1**
Machine : Beretta T41 **Flush :** Mist **Core Dia :** 92 mm **Method :** Rotary Cored	**Casing Diameter** 125mm cased to 3.00m **Location**	**Ground Level (mOD)** **Dates** 17/08/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(3.00)	MADE GROUND: Dark brown clayey gravelly SAND with occasional brick and stone.		
							3.00 (1.45)	Weathered SANDSTONE.		
4.50							4.45 (0.31) 4.76 (0.46) 5.22 (0.14) 5.36 (0.14) 5.50 (0.26) 5.76	NO RECOVERY. Medium strong thinly bedded red and orange fine to medium SANDSTONE with occasional rounded red mudstone clasts. Slightly weathered. Dip 20degrees. Fractures very closely spaced planar smooth clean. Residual weathered MUDSTONE recovered as firm consistency red CLAY. Very weak thinly laminated grey SILTSTONE. Partially weathered. Dip 20degrees. Fractures very closely spaced planar smooth clean bedding parallel, likely drilling induced.		
	82	74	48	Av:50 Min:NI Max:450			(1.12)	NO RECOVERY. Very weak thinly laminated red MUDSTONE. Destructured to 6.00mbgl. Distinctly weathered below 6.00mbgl. Dip 20degrees. Fractures closely to medium spaced stepped rough clean bedding parallel, possibly drilling induced.		
7.50							6.88 (0.12) 7.00 (0.50)	Very weak thinly laminated black MUDSTONE to SHALE. Partially weathered becoming reddish grey in bands with depth. Dip 20degrees. Fractures closely to medium spaced stepped rough clean bedding parallel, possibly drilling induced. Weak thinly laminated grey SILTSTONE. Distinctly weathered to 7.30mbgl. Partially weathered below 7.30mbgl. Dip 20degrees. Fractures very closely spaced stepped rough clean, majority bedding parallel. Subvertical stepped rough clean fracture from		

Remarks	**Scale (approx)**	**Logged By**
	1:40	PW
	Figure No.	
	LKC 20 1120.RBH1	

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **RBH1**
Machine : Beretta T41 **Flush :** Mist **Core Dia :** 92 mm **Method :** Rotary Cored	**Casing Diameter** 125mm cased to 3.00m **Location**	**Ground Level (mOD)** **Dates** 17/08/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							7.50	7.20-7.50mbgl.		
							8.00	NO RECOVERY.		
	82	75	46	Av:10 Min:10 Max:360			(2.50)	Very weak thinly laminated reddish grey SILTSTONE. Slightly weathered. Dip 20degrees. Fractures medium spaced planar smooth clean, rare closed with slight red discolouration, bedding parallel. Subvertical undulating smooth clean fracture from 8.50-9.00mbgl. Subvertical stepped striated iron stained fracture from 9.90-10.30mbgl. Very thinly interbedded light grey fine SANDSTONE lenses present from 10.00-10.20mbgl.		
10.50							10.50	NO RECOVERY.		
	69	66	40	Av:80 Min:NI Max:380			(0.60) 11.10 (2.40)	Very weak thinly laminated reddish grey SILTSTONE. Slightly weathered. Dip 20degrees. Fractures closely spaced planar smooth clean bedding parallel. Subvertical undulating closed fracture from 11.90-12.10mbgl. Very thinly interbedded light grey fine SANDSTONE lenses present from 12.30-13.10mbgl. Subvertical undulating rough iron stained fracture from 12.30-12.80mbgl. Highly weathered 12.50-12.75mbgl.		
13.50							13.50	Completely weathered 13.40-13.50mbgl.		
							(0.60)	NO RECOVERY.		
	79	78	35	Av:80 Min:NI Max:320			14.10 (0.70)	Weak thinly laminated reddish grey MUDSTONE. Partially weathered. Dip 20degrees. Fractures closely spaced stepped smooth clean bedding parallel. One of the stepped smooth clean bedding parallel fractures shows polished clay and slicken lines.		
15.00							14.80 (0.70)	Weak thinly laminated black MUDSTONE to SHALE. Partially weathered. Dip 20degrees. Fractures medium to closely spaced planar smooth clean bedding parallel, potentially drilling induced. Subvertical stepped closed fracture from 14.90-15.40mbgl.		
							15.50 (0.50)	Complete at 15.50m		

Remarks

Scale (approx)	Logged By
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Figure No.
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Machine : Beretta T41 **Flush :** Mist **Core Dia :** 92 mm **Method :** Rotary Cored	**Casing Diameter** 125mm cased to 13.50m **Location**	**Ground Level (mOD)** **Dates** 18/08/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(3.00)	MADE GROUND: Dark brown clayey gravelly SAND with occasional brick and stone.		
							3.00	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with occasional pottery, bones and timber.		
							(8.50)			

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
LKC 20 1120.RBH2

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Machine : Beretta T41 **Flush :** Mist **Core Dia :** 92 mm **Method :** Rotary Cored	**Casing Diameter** 125mm cased to 13.50m **Location**	**Ground Level (mOD)** **Dates** 18/08/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							11.50	MADE GROUND: Bricks and stone with some ash.		
							(2.00)			
13.50							13.50	Medium strong thinly bedded red fine to medium SANDSTONE with occasional mica. Fresh. Dip 15-25degrees. Fractures closely to medium spaced planar smooth clean bedding parallel.		
							(1.30)			
							14.80	30mm thick deep red band at base of the strata.		
	79	78	70	Av:140 Min:10 Max:260			(0.98)	Medium strong thinly bedded pale buff fine to medium SANDSTONE with occasional mica. Fresh. Dip 15-25degrees. Fractures closely to medium spaced planar smooth clean bedding parallel. Distinctly weathered 15.28-15.35mbgl.		
							15.78	Weak thinly laminated reddish grey MUDSTONE. Unweathered. Dip 20degrees. Fractures closely spaced		

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **RBH2**
Machine : Beretta T41 **Flush :** Mist **Core Dia :** 92 mm **Method :** Rotary Cored	**Casing Diameter** 125mm cased to 13.50m **Location**	**Ground Level (mOD)** **Dates** 18/08/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.32)	planar smooth bedding parallel.		
							16.10 (0.13)			
							16.23 (0.27)	Weak thinly laminated grey SILTSTONE with occasional iron inclusions. Slightly weathered. Dip 20degrees. Fractures closely spaced planar smooth clean bedding parallel.		
16.50	74	42	32	Av:NI	Min:NI,Max:180		16.50 (0.50)	Very weak thinly laminated reddish grey MUDSTONE. Distinctly weathered. Dip 20degrees. Fractures extremely to very closely spaced planar smooth clean with rare clay infill bedding parallel.		
17.00							17.00	Medium strength thinly laminated light and dark grey interbedded SILTSTONE. Slightly weathered. Dip 15degrees. Fractures closely spaced planar smooth clean bedding parallel. Subvertical stepped rough clean fracture from 16.80-17.00mbgl.		
	100	92	32	Av:80 Min:NI Max:190			(3.00)	Medium strength thinly laminated reddish grey SILTSTONE. Slightly weathered. Dip 20degrees. Fractures closely spaced planar smooth to undulating smooth clean 20-45degrees. Very thinly interbedded light grey fine SANDSTONE lenses present from 19.00-19.35mbgl.		
20.00							20.00	Complete at 20.00m		

Remarks

Scale (approx)	Logged By
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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Borehole Number** **RBH3**
Machine : Beretta T41 **Flush :** Mist **Core Dia :** 84 mm **Method :**	**Casing Diameter** 125mm cased to 14.00m **Location**	**Ground Level (mOD)** **Dates** 01/09/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.15) 0.15	MADE GROUND: Brown silty gravelly SAND with occasional rootlets and rare brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
								Light brown CLAY with frequent sand and gravel bands.		
							(13.85)			

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
LKC 20 1120.RBH3

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Machine : Beretta T41 **Flush :** Mist **Core Dia :** 84 mm **Method :**	**Casing Diameter** 125mm cased to 14.00m **Location**	**Ground Level (mOD)** **Dates** 01/09/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
14.00							14.00	NO RECOVERY.		
	36	26	6	Av:30 Min:NI Max:190			(1.90) 15.90	Weak to medium strong thinly to thickly laminated dark red		

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
LKC 20 1120.RBH3

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Machine : Beretta T41 **Flush :** Mist **Core Dia :** 84 mm **Method :**	**Casing Diameter** 125mm cased to 14.00m **Location**	**Ground Level (mOD)** **Dates** 01/09/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(1.10)	fine SANDSTONE with occasional mica. Slightly weathered. Dip 20degrees. Fractures very closely spaced planar smooth clean bedding parallel, possibly drilling induced. Subvertical fracture planar rough iron stained from 15.90-16.60mbgl.		
17.00							17.00			
							(0.80)	NO RECOVERY.		
	46.6	23.3	0	Av:10 Min:NI Max:80			17.80			
							(0.70)	Weak thinly laminated black shaley MUDSTONE. Partially weathered. Dip 20degrees. Fractures very closely planar smooth clean bedding parallel, possibly drilling induced. Distinctly weathered 18.00-18.15mbgl.		
18.50							18.50			
							(0.50)	NO RECOVERY.		
	67	56	0	Av:70 Min:NI Max:90			19.00			
							(1.00)	Weak thinly laminated black shaley MUDSTONE. Partially weathered. Dip 20degrees. Fractures very closely planar smooth clean bedding parallel, possibly drilling induced.		
20.00							20.00	Complete at 20.00m		

Remarks	**Scale (approx)**	**Logged By**
	1:40	PW
	Figure No.	
	LKC 20 1120.RBH3	

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **RBH4**
Machine : Beretta T41 **Flush :** Mist **Core Dia :** 84 mm **Method :**	**Casing Diameter** 125mm cased to 14.00m **Location**	**Ground Level (mOD)** **Dates** 01/09/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.15) 0.15	MADE GROUND: Brown silty gravelly SAND with occasional rootlets and rare brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
								Light brown CLAY with frequent sand and gravel bands.		
							(13.85)			

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
LKC 20 1120.RBH4

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LK GROUP

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

Site
Collyhurst Village, Manchester

Borehole Number
RBH4

Machine : Beretta T41
Flush : Mist
Core Dia : 84 mm
Method :

Casing Diameter
125mm cased to 14.00m

Ground Level (mOD)

Client
Far East Consortium International Limited

Job Number
LKC 20 1120

Location

Dates
01/09/2020

Project Contractor
D&I

Sheet
2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
14.00							14.00	NO RECOVERY.		
							(1.70)			
	35	30	11.6	Av:NI Min:NI Max:350			15.70 (0.30)	NOT INTACT. Siltstone recovered as gravel and clay.		

Remarks

Scale (approx)
1:40

Logged By
PW

Figure No.
LKC 20 1120.RBH4

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Machine : Beretta T41 **Flush :** Mist **Core Dia :** 84 mm **Method :**	**Casing Diameter** 125mm cased to 14.00m **Location**	**Ground Level (mOD)** **Dates** 01/09/2020	**Client** Far East Consortium International Limited **Project Contractor** D&I	**Job Number** LKC 20 1120 **Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							16.00			
							(0.45)	Very weak thinly laminated grey interbedded SILTSTONE and fine SANDSTONE. Distinctly weathered. Dip 20degrees. Fractures very closely spaced planar smooth clean bedding parallel, possibly drilling induced.		
							16.45	Subvertical undulating closed fracture from 16.00-20.00mbgl. Weak by 16.30mbgl.		
							16.47			
							(0.53)	Orange fine SAND. Possibly a band of completely weathered sandstone.		
17.00							17.00	Weak thinly laminated grey interbedded SILTSTONE and fine SANDSTONE. Distinctly weathered. Dip 20degrees. Fractures very closely spaced planar smooth clean bedding parallel, possibly drilling induced.		
	96	85	8.6	Av:60 Min:NI Max:130				Weak thinly laminated black shaley MUDSTONE with rare light grey fine sandstone inclusions. Partially weathered. Dip 20degrees. Fractures very closely planar smooth clean bedding parallel, possibly drilling induced. Destructured at 17.65-17.76mbgl.		
18.50							(3.00)			
	93	88	52	Av:110 Min:NI Max:150				Destructured at 19.12-19.20mbgl.		
20.00							20.00	Complete at 20.00m		

Remarks

Scale (approx)	Logged By
1:40	PW

Figure No.
LKC 20 1120.RBH4

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

Site	Number
Collyhurst Village, Manchester	WS1

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sample driven to 3.44mbgl.		60.61	Far East Consortium International Limited	LKC 20 1120

Location	Dates	Project Contractor	Sheet
385606.3 E 400419.4 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description
				60.51	(0.10) 0.10	MADE GROUND: Dark greyish brown slightly gravelly sandy SILT with frequent rootlets and rare clinker. Sand is fine to medium. Gravel is fine to medium and subrounded to subangular comprising sandstone.
0.10-0.50	D1 PID=0.1ppm				(0.40)	
				60.11	0.50	MADE GROUND: Dark brown gravelly sandy silty CLAY with occasional brick fragments, coal fragments and rare ash. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.
0.60-1.00	DB2 PID=<0.1ppm					
1.20-1.65	SPT N=14		3,3/3,3,4,4			Firm to very stiff consistency brown to light yellowish brown mottled slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to medium and angular to subangular comprising sandstone and mudstone. Less sand and gravel content with depth.
1.20-1.65	X3					
1.50-2.00	B4					
					(2.94)	
2.00-2.45	SPT N=21		2,3/4,5,6,6			
2.00-2.45	X5					Noted to be silty between 2.50-3.00mbgl.
3.00-3.44	SPT 50/290		8,9/11,13,13,13			
3.00-3.44	X6					
				57.17	3.44	SPT refusal at 3.44mbgl on hard consistency CLAY.
						Complete at 3.44m

Remarks
SPT refusal at 3.44mbgl on hard consistency CLAY.
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	Logged By
1:40	HM

Figure No.
LKC 20 1120.WS1

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Number** **WS10**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		56.11	Far East Consortium International Limited	LKC 20 1120
	Location 385650.9 E 400266.7 N	**Dates** 13/07/2020-24/07/2020	**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				(0.50)	MADE GROUND: Dark greyish brown slightly gravelly very sandy SILT with occasional rootlets, rare brick fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
				55.61	0.50	Layer of bricks at 0.30-0.50mbgl.			
1.20-1.65 1.20-1.50	SPT N=15 D2		3,2/3,4,4,4			MADE GROUND: Medium dense to very loose black to dark orangish brown gravelly SAND with frequent ash, occasional brick fragments, clinker, rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone and mudstone. Frequent ash and clinker between 1.00-2.00mbgl.			
2.00-2.45	SPT N=12		1,2/2,3,3,4			Layer of dark grey gravelly sandy SILT with frequent ash, brick fragments and rare clinker between 2.00-2.10mbgl.			
3.00-3.45	SPT N=4		1,1/1,1,1,1		(4.95)	Very loose below 3.00mbgl.			
4.00-4.45	SPT N=0		1,0/0,0,0,0			Dark orangish brown below 4.00mbgl.			
5.00-5.45	SPT N=1		1,0/0,1,0,0						
				50.66	5.45	Complete at 5.45m			

Remarks
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS10

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Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Number
Collyhurst Village, Manchester	**WS11**

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385530 E 400276 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Blackish brown gravelly silty SAND with occasional rootlets, brick fragments and rare clinker. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.		
					0.40	Refusal at 0.40mbgl on sandstone cobble.		
						Complete at 0.40m		

Remarks
Refusal at 0.40mbgl on sandstone cobble, borehole relocated.

Scale (approx)	Logged By
1:40	HM

Figure No.
LKC 20 1120.WS11

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Excavation Method Drive-in Windowless Sampler	**Dimensions**	**Ground Level (mOD)**	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location	**Dates** 13/07/2020- 24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30) 0.30	MADE GROUND: Blackish brown gravelly silty SAND with occasional rootlets, brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Refusal at 0.30mbgl on sandstone cobble. Complete at 0.30m		

Remarks

Scale (approx)	Logged By
1:40	

Figure No.
LKC 20 1120.WS11B

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler			Far East Consortium International Limited	LKC 20 1120
	Location	**Dates** 13/07/2020- 24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30) 0.30	MADE GROUND: Blackish brown gravelly silty SAND with occasional rootlets, brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Refusal at 0.30mbgl on sandstone cobble. Complete at 0.30m		

Remarks

Scale (approx)	**Logged By**
1:40	

Figure No.
LKC 20 1120.WS11B

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 3.37mbgl.		58.05	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385536.8 E 400277.9 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.40	D1				(0.40)	MADE GROUND: Blackish brown gravelly sandy SILT with occasional rootlets, brick fragments, rare clinker and ash. Sand is fine to medium. Gravel is fine to coarse and rounded to angular comprising sandstone and mudstone.			
				57.65	0.40				
0.50-1.00	DB2					Stiff to hard consistency brown grey mottled slightly gravelly CLAY with rare sandstone cobbles. Gravel is fine to coarse and subangular comprising sandstone.			
1.00	PP 171.8kPa								
1.20-1.65	SPT N=17		2,3/4,4,4,5						
1.20-1.65	X3								
					(2.97)				
2.00	PP 1843.7kPa					Hard consistency below 2.00mbgl.			
2.00-2.45	SPT N=30		4,4/6,7,8,9						
2.00-2.45	X4					No grey mottling below 2.50mbgl.			
3.00	PP 220.8kPa								
3.00-3.37	SPT 50/220		9,11/14,18,18						
3.00-3.37	X5								
				54.68	3.37	SPT refusal at 3.37mbgl on hard consistency clay.			
						Complete at 3.37m			

Remarks
Borehole dry and stable.
Location accurate to 5.00-8.00m.
SPT refusal at 3.37mbgl on hard consistency clay.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS11D

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample to driven to 5.45mbgl.		56.98	Far East Consortium International Limited	LKC 20 1120
	Location 385559 E 400263.8 N	**Dates** 13/07/2020-24/07/2020	**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
0.00-0.20	D1				(0.30)	MADE GROUND: Blackish gravelly silty SAND with frequent rootlets, occasional brick fragments, rare glass, ash and clinker. Sand is fine to medium. Gravel is fine to medium angular comprising sandstone.			
0.30-1.00	D2			56.68	0.30				
					(0.70)	MADE GROUND: Orangish brown very gravelly SAND with frequent brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone.			
1.20	PP 171.6kPa			55.98	1.00				
1.20-1.65	SPT N=15		7,7/6,3,3,3			Very stiff consistency high strength brown slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
1.20-1.60	D4				(0.70)				
1.20-1.65	X3								
1.70-2.00	B5			55.28	1.70				
2.00	PP 85.8kPa					Firm to stiff consistency medium to high strength brown grey mottled slightly gravelly CLAY. Gravel is fine to medium and subangular comprising sandstone and mudstone.			
2.00-2.45	SPT N=17		3,3/3,4,5,5						
2.00-2.45	X6								
2.70-3.00	B7				(2.10)				
3.00	PP 73.6kPa								
3.00-3.45	SPT N=13		3,3/3,3,3,4						
3.00-3.45	X3								
				53.18	3.80				
4.00-4.45	SPT N=16		2,3/3,4,4,5			Firm consistency greyish brown slightly sandy silty CLAY with slight organic odour. Sand is fine to medium. Sand content decreases with depth.			
4.00-4.45	X4								
					(1.65)				
5.00-5.45	SPT N=9		2,2/2,2,2,3			Damp strata at base.			
5.00-5.45	X5								
				51.53	5.45				
						Complete at 5.45m			

Remarks
Location accurate to 5.00-8.00m.
Damp strata below 5.00mbgl.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS12

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		62.42	Far East Consortium International Limited	LKC 20 1120
	Location 385564.3 E 400431.4 N	**Dates** 16/07/2020	**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
0.00-0.50	D1				(0.70)	MADE GROUND: Dark grey gravelly silty SAND with occasional brick fragments, rare plastic, ceramic fragments, ash and clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
				61.72	0.70	Layer of ash between 0.60-0.70mbgl.			
0.80-1.70	D2					MADE GROUND: Brown slightly gravelly sandy CLAY (dessicated) with occasional brick fragments, ceramic fragments, rare roots, clinker and coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising mudstone.			
1.20-1.65	SPT N=12		3,3/3,3,3,3		(1.00)				
1.60-1.65	X3			60.72	1.70				
1.70-2.00	D4					Stiff to hard consistency high to very high strength brown slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone and mudstone. Less sand and gravel content with depth.			
2.00	PP 134.8kPa								
2.00-2.45	SPT N=24		3,4/5,6,6,7						
2.00-2.45	X5								
2.50-3.00	B6								
3.00	PP 147.1kPa								
3.00-3.45	SPT N=38		8,8/8,10,10,10						
3.00-3.45	X7					Thin layer of silty SAND between 3.00-3.05mbgl.			
					(3.75)				
4.00-4.45	SPT N=32		6,6/7,8,8,9						
4.00-4.45	X8								
5.00-5.45	SPT N=44		8,8/10,11,11,12						
5.00-5.45	X9								
				56.97	5.45	Complete at 5.45m			

Remarks
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS13

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 1.70mbgl.			Far East Consortium International Limited	LKC 20 1120
	Location 385626 E 400218 N	**Dates** 13/07/2020-24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	D1 PID=				(0.40) 0.40	MADE GROUND: Dark greyish brown gravelly very sandy SILT with frequent rootlets, rare brick fragments, clinker, coal fragments, metal and plastic. Sand is fine to medium. Gravel is fine to coarse and rounded to angular comprising sandstone and mudstone.		
					(0.80) 1.20	MADE GROUND: Dark greyish brown sandy GRAVEL with occasional brick fragments, concrete fragments and rare sandstone cobbles. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.		
1.20-1.65	SPT N=9		2,2/3,2,2,2		(0.50) 1.70	MADE GROUND: Grey gravelly sandy silty CLAY with frequent ash and brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Sampler refusal at 1.70bgl on sandstone cobble		
						Complete at 1.70m		

Remarks
Borehole dry and stable.
Sampler refusal at 1.70mbgl on possible sandstone cobble. Borehole relocated (See WS14B).
Location accurate to 5.00-8.00mbgl.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS14

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		55.56	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385624.2 E 400221.3 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.40)	MADE GROUND: Dark greyish brown gravelly very sandy SILT with frequent rootlets, rare brick fragments, clinker, coal fragments, metal and plastic. Sand is fine to medium. Gravel is fine to coarse and rounded to angular comprising sandstone and mudstone.			
0.40-1.00	D1			55.16	0.40				
					(1.60)	MADE GROUND: Dark brown slightly clayey gravelly SAND with frequent brick fragments, occasional clinker, rare plastic, clay inclusions and coal fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone and mudstone.			
1.20-1.65	SPT N=12		3,3/3,3,3,3						
1.60-2.00	D2					Occasional tarmacadam fragments and light hydrocarbon odour between 1.60-2.00mbgl.			
2.00-2.45	SPT N=0		1,0/0,0,0,0	53.56	2.00	MADE GROUND: Grey slightly gravelly sandy silty CLAY with occasional pottery fragments, ash and brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone. Damp strata below 2.00mbgl.			
					(2.00)				
3.00-3.45	SPT N=0		1,0/0,0,0,0						
4.00-4.45	SPT N=1		1,0/0,0,0,1	51.56	4.00	Soft consistency grey slightly gravelly silty CLAY. Gravel is fine to medium and subangular comprising sandstone.			
4.00-4.50	D3								
					(1.45)				
5.00-5.45	SPT N=2		1,1/2,0,0,0						
				50.11	5.45	Complete at 5.45m			

Remarks
Damp strata below 2.00mbgl.
Borehole stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS14B

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 2.37mbgl.		55.81	Far East Consortium International Limited	LKC 20 1120
	Location 385528.9 E 400221.3 N	**Dates** 13/07/2020- 24/07/2020	**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
0.00-0.70	D1 PID=<0.1ppm				(0.70)	MADE GROUND: Light brown sandy very gravelly CLAY with occasional concrete fragments, rare brick fragments and ash. Sand is fine to medium. Gravel is fine to coarse and subangular comprising limestone and mudstone.			
				55.11	0.70				
0.80-1.00 1.00	DB2 PID=<0.1ppm PP 171.68kPa				(0.50)	Very stiff consistency very high strength brown and grey mottled slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
1.20-1.65	SPT N=23		2,3/4,6,6,7	54.61	1.20				
1.40-1.80	B3				(1.17)	Very dense brown to orangish brown slightly gravelly slightly clayey SAND with rare clay inclusions and coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone. Clay content decreases with depth.			
2.00-2.37	SPT 50/220		8,8/10,17,23 Water strike(1) at 2.10m.			Wet strata below 2.00mbgl.		▽1	
				53.44	2.37	SPT refusal at 2.37mbgl on very dense SAND.			
						Complete at 2.37m			

Remarks
Groundwater strike at 2.10mbgl.
SPT refusal at 2.37mbgl on very dense SAND.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS15

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		54.89	Far East Consortium International Limited	LKC 20 1120
	Location 385575.3 E 400231.7 N	**Dates** 13/07/2020-24/07/2020	**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				(0.40)	MADE GROUND: Blackish brown gravelly sandy SILT with occasional clinker, rare brick fragments and glass. Sand is fine to medium. Gravel is fine to medium and angular to subangular comprising sandstone and slate.			
0.50-1.50	D2			54.49	0.40	MADE GROUND: Dark brown and orangish brown mottled sandy very gravelly CLAY with frequent ash, clinker, occasional blue-glazed pottery fragments, rare glass, plastic, metal fragments and coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone, mudstone and shale.			
1.20-1.65	SPT N=0		1,0/0,0,0,0						
2.00-2.45	SPT N=0		1,0/0,0,0,0		(2.60)				
3.00-3.45	SPT N=1		1,0/0,0,0,1	51.89	3.00	MADE GROUND: Dark grey slightlly gravelly silty CLAY with occasional oyster shells and rare clinker. Gravel is fine to medium and subangular comprising mudstone.			
4.00-4.45	SPT N=1		1,0/0,0,1,0						
4.60-5.00	D3				(2.45)				
5.00-5.45	SPT N=2		1,0/0,0,1,1						
				49.44	5.45	Complete at 5.45m			

Remarks
Borehole dry and stable.
Location accurate to 5.0-8.0m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS16

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	Site Collyhurst Village, Manchester	Number WS17

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sample driven to 5.45mbgl.		55.37	Far East Consortium International Limited	LKC 20 1120
	Location 385562.6 E 400211.5 N	**Dates** 13/07/2020-24/07/2020	**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
					(0.60)	MADE GROUND: Greyish brown sandy very clayey GRAVEL with rare brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising limestone, quartz and sandstone.			
0.60-1.00	D1 PID=0.1ppm			54.77	0.60				
					(0.40)	MADE GROUND: Dark greyish brown gravelly sandy silty CLAY with occasional brick fragments, coal fragments, rare ash and pottery fragments. Sand is fine to medium. Gravel is fine to medium and subangular to angular comprising sandstone and mudstone.			
1.20-1.65	SPT N=1		2,2/0,0,0,1	54.37	1.00				
1.20-2.20	D2 PID=0.3ppm								
					(1.80)	MADE GROUND: Dark greyish brown to black gravelly SAND with frequent ash, occasional brick fragments, clinker and rare pottery fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone and mudstone. Layer of predominantly ash between 1.800-2.00mbgl.			
2.00-2.45	SPT N=8		2,2/2,2,2,2			Borehole collapsing from 2.50mbgl.			
2.80-3.50	D3 PID=0.3ppm			52.57	2.80				
3.00-3.45	SPT N=21		3,3/4,5,6,6			MADE GROUND: Dark brown gravelly sandy CLAY with occasional brick fragments, coal fragments and ash. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone and mudstone.			
					(0.70)				
3.80-4.00	DB4 PID=0.1ppm			51.87	3.50				
4.00	PP 98.1kPa					Firm to stiff consistency high strength slightly gravelly sandy to very sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
4.00-4.45	SPT N=9		2,2/2,2,2,3						
4.00-4.45	X5								
					(1.95)				
5.00-5.45	SPT N=10		2,2/2,2,3,3						
5.00-5.45	X6								
				49.92	5.45				
						Complete at 5.45m			

Remarks
Borehole collapsing from 3.00mbgl.
Borehole dry.
Location accurate to 5.00-8.00mbgl.

Scale (approx)	Logged By
1:40	HM

Figure No.
LKC 20 1120.WS17

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 4.30mbgl.		54.77	Far East Consortium International Limited	LKC 20 1120
	Location 385518.3 E 400140.4 N	**Dates** 13/07/2020-24/07/2020	**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
0.00-0.40	D1				(0.40)	MADE GROUND: Dark grey slightly sandy gravelly silty CLAY with occasional brick fragments, rare concrete fragments and rootlets. Sand is fine to medium. Gravel is fine to coarse and subangular comprising limestone and sandstone.			
0.40-1.00	D2			54.37	0.40	MADE GROUND: Orangish brown to greyish brown organic sandy CLAY with occasional brick fragments, coal fragments, rare plastic and rootlets. Sand is fine to medium. Gravel is fine to medium and subangular to angular comprising sandstone comprising sandstone and mudstone.			
1.20-1.65	SPT N=11		2,2/2,3,3,3		(0.80)				
1.20-2.00	D3			53.57	1.20	MADE GROUND: Black gravelly SAND of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to medium and subangular.			
2.00-2.45	SPT N=3		1,0/1,0,1,1		(0.80)				
				52.77	2.00	MADE GROUND: Dark greyish brown to dark brown very gravelly very sandy CLAY with frequent ash, clinker, occasional coal fragments and rare glass. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone, mudstone and shale. Less sand and gravel with increasing depth. Dark brown below 2.00mbgl.			
3.00-3.45	SPT N=8		1,1/2,2,2,2		(1.00)				
3.00-3.50	D4			51.77	3.00	Soft to firm consistency light grey silty CLAY (possible reworked).			
				51.27	3.50	Firm to stiff consistency orangish brown slightly gravelly CLAY. Gravel is fine to coarse and subangular comprising sandstone.			
4.00-4.30	SPT 50/150		8,10/22,28		(0.80)				
4.00-4.30	X5			50.47	4.30	SPT refusal at 4.30mbgl on stiff consistency gravelly CLAY (possible sandstone cobble).			
						Complete at 4.30m			

Remarks
Borehole dry and stable.
SPT refusal at 4.30mbgl on stiff consistency gravelly CLAY (possible sandstone cobble).
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS18

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		59.33	Far East Consortium International Limited	LKC 20 1120
	Location 385668.3 E 400407.8 N	**Dates** 16/07/2020	**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				(0.40)	MADE GROUND: Brown gravelly silty SAND with occasional clinker, brick fragments and concrete fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
				58.93	0.40				
0.70-1.00	D2				(0.60)	MADE GROUND: Dark greyish brown gravelly sandy CLAY with occasional ash, coal fragments, concrete fragments, rare clinker and sandstone cobbles. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone.			
				58.33	1.00				
1.20-1.65 1.20-1.50	SPT N=42 D3		9,10/10,10,10,12		(0.70)	MADE GROUND: Black slightly silty gravelly SAND with frequent ash, occasional clinker and rare oyster shells. Sand is fine to medium. Gravel is fine to medium and angular to subangular comprising mudstone.			
1.70-2.00	B4			57.63	1.70				
2.00 2.00-2.45 2.00-2.45	PP 85.8kPa SPT N=11 X5		2,2/3,2,3,3			Soft to firm consistency medium to high strength brown slightly sandy silty CLAY with occasional silt layers. Sand is fine to medium. Layer of light greyish brown SILT at 2.00-2.10mbgl.			
2.50-3.00	B6								
					(2.30)				
3.00 3.00-3.45 3.00-3.45	PP 49.1kPa SPT N=8 X7		2,2/2,2,2,2			Layer of light greyish brown SILT at 2.95-3.00mbgl. Soft consistency between 3.50-4.00mbgl.			
4.00-4.45 4.00-4.45	X8 SPT N=4		Water strike(1) at 4.00m. 1,1/0,0,2,2	55.33	4.00	Soft to firm consistency brown slightly gravelly CLAY. Gravel is fine to medium and subangular comprising sandstone. Wet strata below 4.00mbgl.		▽1	
					(1.45)				
5.00-5.45 5.00-5.45	SPT N=9 X9		2,2/2,2,2,3						
				53.88	5.45	Complete at 5.45m			

Remarks
Wet strata below 4.00mbgl.
Location accurate to 5.00-8.00m.
Borehole stable.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS2

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 3.30mbgl.		62.00	Far East Consortium International Limited	LKC 20 1120
	Location 385560.9 E 400409.7 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.40	D1 PID=0.1ppm			61.90	(0.10) 0.10	MADE GROUND: Dark greyish brown slightly gravelly sandy silty CLAY with frequent rootlets, occasional brick fragments and rare sandstone cobbles. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.		
					(0.50)			
0.80-1.20	D2 PID=0.2ppm			61.40	0.60	MADE GROUND: Dark brown gravelly very sandy CLAY with occasional brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone.		
1.20-1.65	SPT N=12		3,3/3,3,3,3		(1.05)	MADE GROUND: Dark grey gravelly silty SAND with frequent brick fragments, occasional silt inclusions and rare clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.		
				60.35	1.65	NO RECOVERY - POSSIBLE VOID. Sampler dropped from 1.65-3.30mbgl, possible void. Borehole terminated.	VOID	
					(1.65)			
				58.70	3.30	Complete at 3.30m		

Remarks
Borehole dry and stable.
Possible void identified between 1.65-3.30mbgl. Borehole terminated and relocated (See WS13B).
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS3

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 3.24mbgl.		62.85	Far East Consortium International Limited	LKC 20 1120
	Location 385564.8 E 400399.5 N	**Dates** 16/07/2020	**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
0.00-0.50	D1				(0.50)	MADE GROUND: Dark grey slightly gravelly very silty SAND with occasional glass, ash and rare brick fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
				62.35	0.50				
0.50-0.80	D2				(0.40)	MADE GROUND: Grey slightly silty gravelly SAND with occasional clinker, ash and rare brick fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone and mudstone. Layer of CLAY between 0.80-0.90mbgl.			
				61.95	0.90				
1.00-1.40 1.20 1.20-1.65 1.20-1.65	D3 PP 220.7kPa SPT N=20 X4		3,3/4,5,5,6		(1.10)	Very stiff to hard consistency very high strength brown and grey mottled slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone and mudstone.			
1.70-2.00	B5								
2.00 2.00-2.45 2.00-2.45	PP 183.9kPa SPT N=25 X6		3,4/5,6,7,7	60.85	2.00	Very hard consistency very high strength light brown silty CLAY.			
					(1.24)				
2.80 2.80-3.24 2.80-3.24	PP 196.2kPa SPT 50/290 X7		5,10/11,13,14,12						
				59.61	3.24	Complete at 3.24m			

Remarks
SPT refusal at 3.24mbgl on very hard consistency CLAY.
Borehole dry and stable.
Location accurate to 3.0-5.0m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS3B

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 4.24mbgl.		59.84	Far East Consortium International Limited	LKC 20 1120
	Location 385592.2 E 400378.2 N	**Dates** 13/07/2020-24/07/2020	**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
				59.74	(0.10) 0.10	MADE GROUND: Dark greyish brown slightly gravelly sandy SILT with frequent rootlets and rare clinker. Sand is fine to medium. Gravel is fine to medium and subrounded to subangular comprising sandstone.			
					(1.10)	MADE GROUND: Brown very gravelly very sandy CLAY with occasional brick fragments, concrete fragments, rare plastic and clinker. Sand is fine to medium. Gravel is fine to coarse and subrounded to angular comprising sandstone and mudstone.			
1.20 1.20-1.65	PP 110.3kPa SPT N=14		2,2/3,3,4,4	58.64	1.20	Very stiff consistency very high strength brown grey mottled slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
2.00 2.00-2.45	PP 171.6kPa SPT N=19		2,3/4,5,5,5		(1.70)				
3.00 3.00-3.45	PP 159.4kPa SPT N=32		7,8/8,8,8,8	56.94	2.90	Very stiff consistency very high strength light greyish brown slightly gravelly silty CLAY with occasional silt layers. Gravel is fine to medium and subangular comprising sandstone. Band of brownish grey slightly sandy SILT between 2.90-3.00mbgl. Band of brownish grey slightly sandy SILT between 3.20-3.30mbgl.			
					(1.34)				
4.00-4.24	SPT 50/90		8,10/11,14,14,11	55.60	4.24	SPT refusal at 4.24mbgl on very stiff consistency CLAY.			
						Complete at 4.24m			

Remarks
Borehole dry and stable.
SPT refusal at 4.24mbgl.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS4

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 5.45mbgl.		57.86	Far East Consortium International Limited	LKC 20 1120
	Location 385649.3 E 400364.4 N	**Dates** 16/07/2020	**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 PID=0.2ppm				(0.50)	MADE GROUND: Dark greyish brown gravelly silty SAND with occasional concrete fragments, brick fragments and rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone.			
0.50-0.80	D2 PID=0.1ppm			57.36	0.50				
0.80-1.00	D3 PID=<0.1ppm			57.06	(0.30) 0.80	MADE GROUND: Grey sandy GRAVEL with frequent brick and coal fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone and limestone.			
1.20 1.20-1.65 1.20-1.65	PP 61.3kPa SPT N=11 X4		Water strike(1) at 1.00m. 1,1/2,3,3,3			Firm to stiff consistency medium to high strength slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone and mudstone.		▽1	
1.60-2.00	B5								
2.00 2.00-2.45 2.00-2.45	PP 85.8kPa SPT N=8 X6		2,2/2,2,2,2 Water strike(2) at 2.10m.			Wet strata below 2.00mbgl.		▽2	
					(3.30)				
3.00 3.00-3.45 3.00-3.45	PP 98.1kPa SPT N=10 X7		2,2/2,2,3,3						
4.00-4.45 4.00-4.45	SPT N=7 X8		1,1/1,2,2,2 Water strike(3) at 4.50m.	53.76	4.10	Soft to firm consistency light brown slightly gravelly silty CLAY. Gravel is fine to coarse and subangular comprising mudstone. Less gravel content with depth.		▽3	
					(1.35)				
5.00-5.45 5.00-5.45	SPT N=8 X9		1,1/2,2,2,2						
				52.41	5.45	Complete at 5.45m			

Remarks
Groundwater at 1.00mbgl, 2.10mbgl and 4.50mbgl.
Borehole stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS5

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Site	Number
Collyhurst Village, Manchester	**WS6**

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sample driven to 4.42mbgl.		59.58	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385565.5 E 400343.3 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description
0.00-0.30	D1				(0.50)	MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments and rare clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.
0.50-0.80	D2			59.08	0.50	
0.80-1.00	D3				(0.30)	MADE GROUND: Brown slightly gravelly slightly sandy CLAY with occasional brick fragments, coal fragments, ash and rare clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.
1.20	PP 171.6kPa			58.78	0.80	
1.20-1.65	SPT N=21		2,3/5,5,5,6			Very stiff consistency brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse and subangular comprising sandstone and mudstone.
1.20-1.65	X4					
1.70-2.00	B5					
2.00	PP 171.6kPa					
2.00-2.45	SPT N=24		3,4/5,6,6,7			
2.00-2.45	X6					
					(3.62)	
3.00	PP 183.9kPa					
3.00-3.45	SPT N=40		4,6/9,10,10,11			
3.00-3.45	X7					
4.00-4.42	SPT 50/270		7,11/12,13,15,10			
4.00-4.42	X8					
				55.16	4.42	SPT refusal at 4.42mbgl on hard consistency clay.
						Complete at 4.42m

Remarks
SPT refusal at 4.42mbgl on hard consistency clay.
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	Logged By
1:40	HM

Figure No.
LKC 20 1120.WS6

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 0.60mbgl.		58.90	Far East Consortium International Limited	LKC 20 1120
	Location 385602 E 400355.6 N	**Dates** 13/07/2020-24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.60)	MADE GROUND: Dark brown gravelly very silty SAND with occasional whole bricks and concrete fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone and mudstone.		
				58.30	0.60	Refusal at 0.60mbgl on layer of whole bricks (possible relic foundation).		
						Terminated at 0.60m		

Remarks
Refusal at 0.60mbgl on layer of whole bricks (possible relic foundation). Borehole relocated.
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS7

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 0.45mbgl.		58.70	Far East Consortium International Limited	LKC 20 1120
	Location 385601.7 E 400351.5 N	**Dates** 13/07/2020-24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.45)	MADE GROUND: Dark brown gravelly very silty SAND with occasional whole bricks and concrete fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone and mudstone.		
				58.25	0.45	Refusal at 0.45mbgl on layer of whole bricks (possible relic foundation).		
						Terminated at 0.45m		

Remarks
Location accurate to 5.00-8.00m.
Refusal at 0.45mbgl on layer of whole bricks (possible relic foundation). Borehole relocated.
Borehole dry and stable.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS7

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Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 1.30mbgl.		58.70	Far East Consortium International Limited	LKC 20 1120
	Location 385603.9 E 400350.9 N	**Dates** 13/07/2020-24/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.60	D1 PID=0.2ppm				(0.60)	MADE GROUND: Dark brown gravelly very silty SAND with occasional whole bricks and concrete fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone and mudstone.		
				58.10	0.60			
					(0.60)	MADE GROUND: Brown gravelly clayey SAND with occasional brick fragments, concrete fragments and ash. Sand is fine to coarse. Gravel is fine to coarse and subangular to subrounded comprising sandstone and mudstone.		
				57.50	1.20			
				57.40	(0.10) 1.30	MADE GROUND: Concrete. SPT refusal at 1.30mbgl on concrete.		
						Terminated at 1.30m		

Remarks
Refusal at 1.20mbgl on concrete. Borehole abandoned.
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS7

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Site	Number
Collyhurst Village, Manchester	WS8

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sample driven to 5.45mbgl.		57.89	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385621.1 E 400326.9 N	13/07/2020-24/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description
0.00-0.20	D1 PID=0.1ppm				(0.30)	MADE GROUND: Blackish brown slightly gravelly sandy SILT with frequent rootlets, occasional brick fragments and rare glass. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.
				57.59	0.30	
					(0.50)	MADE GROUND: Grey slightly clayey sandy GRAVEL with rare brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and limestone.
0.80-1.50	D2 PID=0.3ppm			57.09	0.80	
1.20-1.65	SPT N=11		2,2/2,3,3,3		(1.00)	MADE GROUND: Brown slightly gravelly slightly sandy CLAY with occasional brick fragments and ash. Sand is fine to medium. Gravel is fine to medium and angular to subangular comprising sandstone and mudstone.
1.80-2.00	D3 PID=0.2ppm			56.09	1.80	
					(0.20)	MADE GROUND: Dark grey organic slightly gravelly silty CLAY with rare wood fragments, metal fragments and clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising mudstone.
2.00-2.45	SPT N=15		5,6/6,3,3,3	55.89	2.00	
2.10-3.00	D4 PID=0.3ppm					MADE GROUND: Brownish orange very gravelly SAND with requent ash, occasional clinker, oyster shells and rare clay inclusions. Sand is fine to medium. Gravel is fine to coarse and angular to subangular comprising sandstone and mudstone. Layer of gravel at 2.00-2.10mbgl.
3.00-3.45	SPT N=10		3,3/4,2,2,2		(2.60)	
4.00-4.45	SPT N=3		1,0/0,1,1,1			
			Water strike(1) at 4.50m.			Wet strata below 4.50mbgl.
4.60-5.00	D5 PID=0.1ppm			53.29	4.60	Soft to firm consistency slightly gravelly silty CLAY. Gravel is fine to medium and subangular comprising mudstone (possible reworked).
5.00-5.45	SPT N=7		1,1/1,2,2,2		(0.85)	
5.00-5.45	X6			52.44	5.45	Complete at 5.45m

Remarks
Groundwater noted at 4.50mbgl.
Borehole stable.
Location accurate to 5.00-8.00m.

Scale (approx)	Logged By
1:40	HM

Figure No.
LKC 20 1120.WS8

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Number** **WS9**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sample driven to 4.12mbgl.		57.34	Far East Consortium International Limited	LKC 20 1120
	Location 385595 E 400290 N	**Dates** 13/07/2020-24/07/2020	**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
0.00-0.60	D1					MADE GROUND: Black gravelly silty SAND with occasional sandstone cobbles, clinker, rare pottery fragments, wood fragments and coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising mudstone.			
					(1.80)				
1.20-1.65	SPT N=0		1,0/0,0,0,0						
1.20-1.50	D2								
1.50-2.00	B3								
				55.54	1.80				
2.00	PP 141kPa					Stiff to very stiff consistency high to very high strength brown slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone.			
2.00-2.45	SPT N=10		1,1/2,2,3,3						
2.00-2.45	X3								
3.00	PP 190kPa				(2.32)				
3.00-3.45	SPT N=49		8,8/10,11,13,15						
3.00-3.45	X4								
3.70-4.12	SPT 50/270		10,10/12,13,14,11			Very sandy clay noted in SPT recovery between 3.70-4.12mbgl.			
3.70-4.12	X5								
				53.22	4.12	SPT refusal at 4.12mbgl on very stiff clay.			
						Complete at 4.12m			

Remarks
Borehole dry and stable.
Location accurate to 5.00-8.00m.

Scale (approx)	**Logged By**
1:40	HM

Figure No.
LKC 20 1120.WS9

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** SA101
Excavation Method Machine excavated trial hole to 2.70mbgl.	**Dimensions**	**Ground Level (mOD)** 58.15	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385647.8 E 400367.3 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				57.85	(0.30) 0.30	MADE GROUND: Dark greyish brown gravelly silty SAND with occasional concrete fragments, brick fragments and rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and mudstone.		
				57.65	(0.20) 0.50	MADE GROUND: Orangish brown gravelly SAND with frequent brick fragments, occasional whole bricks and rare metal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Concrete slab at 0.30mbgl, plastic sheet beneath slab.		
				56.95	(0.70) 1.20	MADE GROUND: Dark brown gravelly sandy CLAY with occasional clinker, brick fragments, rare ash and coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to angular comprising sandstone and mudstone.		
				56.45	(0.50) 1.70	Firm consistency brown slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone (possible reworked).		
			Water strike(1) at 2.40m.		(1.00)	Stiff consistency brown slightly gravelly CLAY. Gravel is fine to coarse and subangular comprising sandstone. Becoming stiffer with depth.		▽1
				55.45	2.70	Complete at 2.70m		

Plan

Remarks

Slow inflow of water at 2.40mbgl.
Trial pit stable.

Scale (approx)	Logged By	Figure No.
1:40	HM	LKC 20 1120.SA101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **SA102**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Machine excavated trial hole to 2.0		59.98	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385593.4 E 400385.6 N	16/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				59.68	(0.30) 0.30	MADE GROUND: Dark brown gravelly clayey SAND with occasional brick fragments, rare glass and plastic. Sand is fine to coarse. Gravel is fine to coarse and subangular comprising sandstone.		
					(1.00)	MADE GROUND: Dark brown gravelly SAND with occasional brick (whole and fragments), rare ash, metal and concrete. Sand is fine to coarse. Gravel is fine to coarse and subangular comprising sandstone.		
			Water strike(1) at 1.60m.	58.68	1.30 (0.70)	Soft to firm consistency brown and grey mottled sandy CLAY with occasional sand lenses. Sand is fine to coarse. Becoming stiffer consistency with depth (possible reworked).		▽1
				57.98	2.00	Complete at 2.00m		

Plan

Remarks

Groundwater strike at 1.60mbgl, rising to 1.40mbgl after 20 minutes.
Trial pit stable.

Scale (approx)	**Logged By**	**Figure No.**
1:40	HM	lkc 20 1120.SA102

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **SA103**
Excavation Method Machine excavated trial pit to 2.10mbgl.	**Dimensions**	**Ground Level (mOD)** 59.70	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385570.9 E 400329.6 N	**Dates** 23/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Black slightly silty gravelly SAND with occasional rootlets, occasional glass fragments and brick fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising		
				59.30	0.40			
					(0.70)	MADE GROUND: Black gravelly SAND with frequent ash, occasional bricks (whole and fragments), sandstone cobbles and clinker. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone and limestone.		
				58.60	1.10			
					(1.00)	Stiff to very stiff consistency brown and grey mottled sandy CLAY. Sand is fine to medium. Layer of light brown SAND between 1.20-1.60mbgl along the N wall of pit.		
				57.60	2.10			
						Complete at 2.10m		

Plan

Remarks

Trial pit dry and stable.

Scale (approx)	Logged By	Figure No.
1:40	HM	LKC 20 1120.SA103

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **SA104**
Excavation Method Machine excavated trial pit to 2.00mbgl.	**Dimensions**	**Ground Level (mOD)** 58.68	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385537.5 E 400283.2 N	**Dates** 01/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Dark brown gravelly silty SAND with occasional rootlets and brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.		
				58.28	0.40			
					(1.50)	Stiff to very stiff consistency brown and grey mottled slightly gravelly CLAY. Gravel is fine to coarse and subangular comprising sandstone and quartz.		
				56.78	1.90	Brown silty fine to medium SAND.		
				56.68	2.00	Complete at 2.00m		

Plan

Remarks

Borehole dry and stable.

Scale (approx)	Logged By	Figure No.
1:40	HM	LKC 20 1120.SA104

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **SA105**
Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)** 55.66	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385531.1 E 400210.2 N	**Dates** 23/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND: Light brown clayey GRAVEL. Gravel is fine to coarse and subangular comprising limestone.		
				55.16	0.50	Old cast iron pipe on northern wall of trial pit at 0.30mbgl, travelling in an approximate E-W direction along northern wall.		
					(1.60)	MADE GROUND: Black gravelly SAND with frequent bricks (whole and fragments), ash, occasional clinker, metal fragments, glass, pottery fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subanugular comprising sandstone and mudstone. Brick wall (relic foundation/basement) on eastern side of trial pit wall extending between 0.50-1.20mbgl. Old cast iron pipe on northern wall of trial pit at 0.60mbgl, travelling in an approximate E-W direction along northern wall. Trial pit collapse from 0.60mbgl.		
				53.56	2.10			
					(0.20)	Orangish brown slightly clayey SAND. Sand is fine to coarse.		
				53.36	2.30			
						Complete at 3.00m		

Plan

Remarks

Trial pit unstable.
Trial pit dry.

Scale (approx)	Logged By	Figure No.
1:40		LKC 20 1120.SA105

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **SA106**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Machine excavated trial pit to 2.00mbgl.		55.83	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385517.3 E 400210.8 N	23/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Grey clayey GRAVEL. Gravel is fine to coarse and subangular comprising limestone.		
				55.43	0.40			
					(0.20)	MADE GROUND: Dark brown gravelly clayey SAND with occasional brick fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.		
				55.23	0.60			
					(1.35)	Stiff consistency brown and grey mottled slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Becoming sandier with depth.		
				53.88	1.95			
				53.83	2.00	Orangish brown fine to coarse SAND.		
						Complete at 2.00m		

Plan

Remarks

Trial hole dry and stable.

Scale (approx)	**Logged By**	**Figure No.**
1:40	HM	LKC 20 1120.SA106

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP101**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.99	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385591.3 E 400253.7 N	**Dates** 15/07/2020	**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				(1.40)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional masonry, whole brick and fragments and rare sandstone slabs. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
1.40-2.40	D2			54.59	1.40	MADE GROUND: Black gravelly SAND of predominantly ash and clinker with occasional pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(2.60)			
				51.99	4.00	Complete at 4.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP102**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 60.08	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385627.3 E 400415.6 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00	PP 132kPa							
0.12-0.85	D1			59.96	(0.12) 0.12	MADE GROUND: Tarmacadam.		
					(0.73)	MADE GROUND: Light grey SANDS and GRAVEL with rare small cobbles. Sand is fine to coarse. Gravel is fine to coarse, subangular of sandstone.		
0.85-1.90	D2			59.23	0.85	MADE GROUND: Soft consistency black and brown mottled sandy CLAY with rare brick fragments. Sand is fine to coarse. Moderate organic "bottom of pond" odour.		
					(1.05)			
1.90-2.50	DB3			58.18	1.90	Firm to stiff consistency brown and grey mottled CLAY.		
					(0.60)			
				57.58	2.50	Complete at 2.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP102

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP103**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.67	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385652.8 E 400411 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-3.00 0.00-0.40	PP 108kPa D1				(0.40)	MADE GROUND: Brown silty SAND with rare clinker. Sand is fine to coarse.		
0.40-1.20	D2			59.27	0.40	MADE GROUND: Black gravelly SAND of predominantly ash with occasional whole brick and fragments and rare metal. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(0.80)			
1.20-2.20	D3			58.47	1.20	MADE GROUND: Firm consistency brown and grey mottled CLAY with rare brick fragments and ash inclusions.		
					(1.30)			
2.50-3.50	DB4			57.17	2.50	Firm consistency brown CLAY.		
					(1.00)			
				56.17	3.50	Complete at 3.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP103

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP104**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.81	**Client** Far East Consortium International Limited **Job Number** LKC 20 1120
	Location 385622.3 E 400392.7 N	**Dates** 16/07/2020	**Project Contractor** D&I **Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00	PP 108kPa			59.75	0.06	MADE GROUND: Tarmacadam.		
0.12-0.70	D1			59.69	0.12	MADE GROUND: CONCRETE.		
					(0.58)	MADE GROUND: Light grey cobbley gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular of sandstone (quartzite).		
0.70-1.30	D2			59.11	0.70	MADE GROUND: Grey clayey SILT with occasional pottery fragments and plant remains. Slight organic "bottom of pond" odour. Duct resent within a trench of orange SAND at 0.70mbgl in the east of the pit. Potential electric cable.		
					(0.60)			
1.30-2.30	DB3			58.51	1.30	Firm to stiff consistency brown CLAY.		
					(1.00)			
				57.51	2.30	Complete at 2.30m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP104

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP105**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.48	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385642.3 E 400389.4 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-3.00 0.00-1.00	PP 108kPa D1				(1.10)	MADE GROUND: Brown gravelly SAND with occasional brick fragments, concrete and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
1.10-2.10	D2			58.38	1.10	MADE GROUND: Brown sandy gravelly CLAY with occasional brick fragments. Sand is fine to coare. Gravel is fine to coarse, subangular.		
					(1.30)	Pottery pipe present at 2.20mbgl.		
2.40-3.40	DB3			57.08	2.40	Firm consistency brown CLAY.		
					(1.00)			
				56.08	3.40	Complete at 3.40m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP105

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP106**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.31	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385660.5 E 400386.5 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 -3.00 0.00-0.30 0.30-1.10	PP 44kPa PP 103kPa D1 D2			59.01	(0.30) 0.30	MADE GROUND: Brown and grey gravelly SAND with occasional brick fragments, concrete and plastic. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(0.80)	MADE GROUND: Brown silty gravelly SAND with occasional whole brick and fragments, rare clay inclusions. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
1.10-1.90	D3			58.21	1.10	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(0.80)			
1.90-2.90	DB4			57.41	1.90	Soft to firm consistency brown and grey mottled silty CLAY with rare brick fragments near the top of the strata. Potentially reworked.		
					(1.20)			
				56.21	3.10	Complete at 3.10m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP106

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP107**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 60.01	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385595.8 E 400384.7 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 0.00-0.30	PP 128kPa D1				(0.30)	MADE GROUND: Dark brown clayey gravelly SAND with occasional brick fragments and plastic. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				59.71	0.30			
0.30-1.20	D2				(0.90)	MADE GROUND: Brown gravelly SAND with occasional clay inclusions, brick fragments, rare metal and concrete. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				58.81	1.20			
1.20-2.20	DB3				(1.30)	Firm brown and grey mottled sandy CLAY. Sand is fine to coarse. Hard and friable with depth. A pottery pipe is present within a MOT filled trench at 1.60mbgl in the north of the pit running alongside the pavement.		
				57.51	2.50	Complete at 2.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP107

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP108**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 61.22	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385565.8 E 400381.4 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-0.80 0.00-0.30	ACM D1				(0.30)	MADE GROUND: Brown silty SAND with frequent rootlets, rare pottery and plastic. Sand is fine to coarse.		
0.30-0.90	D2			60.92	0.30	MADE GROUND: Brown clayey gravelly SAND with occasional brick fragments, ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(0.60)			
0.90-1.90	DB3			60.32	0.90	Cast iron pipe present running approximately east to west at 0.70mbgl Potential ACM cement pipe present running approximately north to south at 0.80mbgl.		
					(1.20)	Stiff consistency brown and grey mottled sandy CLAY.		
				59.12	2.10	Complete at 2.10m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP108

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP109**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.17	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385622.9 E 400371.5 N	**Dates** 16/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.20 0.12-0.65	D3 D1			59.05	(0.12) 0.12	MADE GROUND: Tarmacadam.		
					(0.53)	MADE GROUND: Light grey cobbley gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular of sandstone.		
0.65-1.60	D2			58.52	0.65	MADE GROUND: Firm consistency brown slightly sandy slightly gravelly CLAY with occasional whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular. Cable present at 0.70mbgl. Pottery pipe present at 1.20mbgl.		
					(1.65)			
2.30-2.50	DB4			56.87	2.30	Pottery pipe present at 2.20mbgl within a trench of ash and clinker. Slightly oily with a moderate hydrocarbon odour.		
					(0.20)			
				56.67	2.50	Firm consistency brown silty CLAY. Laminated, hard and friable with depth.		
						Complete at 2.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP109

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 59.06	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385589.7 E 400352.6 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00	PP 191kPa			58.96	0.10	MADE GROUND: Brown silty SAND with frequent rootlets and rare brick fragments. Sand is fine to coarse.		
0.10-1.10	D1				(1.00)	MADE GROUND: Brown sandy gravelly CLAY with frequent roots, occasional whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				57.96	1.10			
					(0.20)	MADE GROUND: CONCRETE slab. 10mm diameter rebar.		
				57.76	1.30			
				57.66	1.40	MADE GROUND: Light grey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular of limestone.		
					(0.20)			
1.60-2.30	DB2			57.46	1.60	MADE GROUND: CONCRETE slab. No rebar.		
					(0.70)	Stiff consistency brown slightly sandy CLAY. Sand is fine to coarse.		
				56.76	2.30	Complete at 2.30m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP110

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP111**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.12	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385630.2 E 400347.6 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 -3.00 0.10-1.10	PP 88kPa PP 103kPa D1			58.02	0.10	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(1.30)	MADE GROUND: Brown gravelly SAND with frequent whole brick and fragments, occasional pottery, ash and clinker, pieces of clay and rare oyster shells. Sand is fine to coarse. Gravel is fine to coarse.		
1.40-2.40	DB2			56.72	1.40	Firm consistency brown and grey mottled sandy CLAY with rare rootlets. Sand is fine to coarse.		
					(1.60)			
				55.12	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP111

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.81	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385581 E 400328.6 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 0.00-0.30	PP 128kPa D1				(0.30)	MADE GROUND: Brown silty slightly gravelly SAND with frequent rootlets, rare brick fragments and plastic. Sand is fine to coarse.		
0.30-1.00	D2			58.51	0.30	MADE GROUND: Light grey gravelly SAND with occasional brick fragments, plastic and rare timber. Sand is fine to coarse. Gravel is fine to coarse, subangular of limestone.		
					(0.70)			
				57.81	1.00	MADE GROUND: Concrete slab. No rebar present.		
					(0.20)			
1.20-2.20	DB3			57.61	1.20	Firm to stiff consistency brown and grey mottled sandy CLAY with occasional lenses of sand. Sand is fine to coarse.		
					(1.00)			
				56.61	2.20	Complete at 2.20m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP112

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.54	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385597.6 E 400325.7 N	**Dates** 15/07/2020	**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				(0.30)	MADE GROUND: Brown gravelly SAND with frequent rootlets and rare brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular of limestone.		
				58.24	0.30			
0.40-1.30	D2			58.14	0.40	MADE GROUND: Grey fine to medium, subangular GRAVEL of limestone.		
					(0.90)	MADE GROUND: Brown clayey gravelly SAND with occasional whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				57.24	1.30	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(0.30)			
				56.94	1.60	MADE GROUND: Soft consistency black grey and brown mottled slightly gravelly sandy CLAY with rare coal inclusions. Sand is fine to coarse. Gravel is fine to medium, subangular.		
2.00-3.00	D3				(1.80)			
				55.14	3.40	Complete at 3.40m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP113

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Tel: 0161 763 7200 web: www.thelkgroup.com

Site	Trial Pit Number
Collyhurst Village, Manchester	TP114

Machine : JCB 3CX Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		59.08	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385543 E 400302.5 N	13/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-1.00 -2.00 0.00-0.20 0.20-1.20	PP 186kPa PP 191kPa D1 DB2			58.88	(0.20) 0.20	MADE GROUND: Dark brown silty gravelly SAND with frequent rootlets, occasional brick fragments and pottery. Sad is fine to coarse. Gravel is fine to coarse, subangular to subrounded of sandstone.		
					(1.80)	Firm to stiff consistency brown and grey mottled sandy CLAY. Sand is fine to coarse. Becoming hard and friable with depth.		
				57.08	2.00	Complete at 2.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP114

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 57.97	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385560.1 E 400293.9 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-1.00	PP 196kPa							
-2.00	PP 211kPa							
0.05-0.20	D1			57.92	0.05	MADE GROUND: Grass over concrete paving slabs.		
0.20-1.20	D2			57.77	(0.15) 0.20	MADE GROUND: Brown gravelly SAND with occasional ash and brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(2.20)	Stiff consistency brown and grey mottled sandy CLAY. Sand is fine to coarse.		
				55.57	2.40	Complete at 2.40m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP115

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Tel: 0161 763 7200 web: www.thelkgroup.com

Site
Collyhurst Village, Manchester

Trial Pit Number
TP116

Machine : JCB 3CX

Method :

Dimensions

Ground Level (mOD)
56.83

Client
Far East Consortium International Limited

Job Number
LKC 20 1120

Location
385608.5 E 400283.5 N

Dates
13/07/2020

Project Contractor
D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(2.30)	MADE GROUND: Brown silty gravelly SAND with occasional ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded. A brick wall is present in the north of the trial pit from 1.40mbgl to 2.50mbgl.		
				54.53	2.30 (0.20)	MADE GROUND: Whole brick and fragments.		
				54.33	2.50 (1.10)	MADE GROUND: Firm consistency sandy CLAY with occasional pottery, brick fragments and oyster shells. Sand is fine to coarse.		
				53.23	3.60	Complete at 3.60m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP116

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Machine : JCB 3CX **Method :** Trial Pit	**Dimensions**	**Ground Level (mOD)** 56.17	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385632.8 E 400275.8 N	**Dates** 14/07/2020	**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)	MADE GROUND: Brown silty SAND with frequent rootlets, rare brick fragments and pottery. Sand is fine to coarse.		
0.20-1.20	D2			55.97	0.20	MADE GROUND: Black and orangish brown gravelly SAND of predominantly ash and clinker with occasional brick fragments, concrete tarmac, pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded. Fewer bricks with depth.		
					(3.40)			
3.60-3.70	D3			52.57	3.60	MADE GROUND: Grey very clayey gravelly SAND with frequent ash, clinker and occasional pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded. Moderate organic "bottom of pond" odour.		
				52.47	3.70	Complete at 3.70m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP117

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.60	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385543.5 E 400288.9 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-1.00 -2.00 0.20	PP 206kPa PP 221kPa D1			58.40	(0.20) 0.20	MADE GROUND: Brown silty SAND with frequent rootlets, rare brick fragments and pottery. Sand is fine to coarse.		
					(0.80)	MADE GROUND: Dark brown gravelly SAND with frequent brick fragments, occasional whole brick, pottery and rare pieces of clay. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
1.00-2.00	DB2			57.60	1.00	Firm to stiff consistency brown sandy CLAY with occasional sand lenses. Hard and friable with depth.		
					(1.30)			
				56.30	2.30	Complete at 2.30m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP118

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 57.01	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385577.5 E 400269.1 N	**Dates** 15/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.10	D1			56.91	0.10	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(0.30)			
0.40-0.80	D2			56.61	0.40	MADE GROUND: Brown sandy CLAY with occaisonal brick fragments. Sand is fine to coarse.		
				56.51	0.50			
					(0.30)	MADE GROUND: Cobbled setts of sandstone with coal tar inbetween.		
				56.21	0.80			
1.00-2.00	D3					MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
						MADE GROUND: Brown gravelly SAND with occasional brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(2.80)			
3.60-4.00	D4			53.41	3.60	MADE GROUND: Soft consistency sandy CLAY with occasional brick fragments. Sand is fine to coarse.		
					(0.40)			
				53.01	4.00	Complete at 4.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP119

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.08	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385622 E 400257.3 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.80	D1			55.98	0.10	MADE GROUND: Brown silty SAND with frequent rootlets and rare glass fragments. Sand is fine to coarse.		
					(0.70)	MADE GROUND: Grey gravelly SAND with frequent brick fragments, concrete fragments and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
0.80-2.20	D2			55.28	0.80	Black and orange gravelly SAND of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(1.40)			
2.20-3.20	D3			53.88	2.20	MADE GROUND: Brown sandy gravelly CLAY with occasional brick fragments, pottery and occasional black organic rich inclusions. Slight organic "bottom of pand" odour.		
					(1.60)			
				52.28	3.80	Complete at 3.80m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP120

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.84	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385678.8 E 400251.1 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	MADE GROUND: Brown silty SAND with frequent rootlets.		
				56.64	0.20	Sand is fine to coarse.		
0.20-1.10	D1					MADE GROUND: Brown gravelly SAND with frequent brick fragments, concrete fragments and rare metal. Sand is fine to coarse. Gravel is fine to coarse, subangular. Concrete predominantly at the top of the strata.		
					(0.90)			
				55.74	1.10			
				55.64	1.20	MADE GROUND: Firm consistency brown CLAY.		
1.20-2.20	D2					MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with occasional pottery smoking pipes. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(2.40)			
				53.24	3.60	Complete at 3.60m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP121

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.63	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385633.5 E 400237.2 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-0.50 0.00-0.30	ACM D1			55.33	(0.30) 0.30	MADE GROUND: Brown slightly gravelly silty SAND with frequent rootlets and rare concrete fragments. Sand is fine to coarse.		
0.30-0.80	D2			54.83	(0.50) 0.80	MADE GROUND: Brown gravelly SAND with frequent brick fragments, concrete fragemnts, rare timber and slates. Sand is fine to coarse. Gravel is fine to coarse, subangular. Potential ACM encountered at 0.50mbgl.		
0.80-1.80	D3				(2.90)	MADE GROUND: Black gravelly SAND of predominantly ash and clinker with occasional brick fragments, rare metal, pottery and timber. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				51.93	3.70	Complete at 3.70m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP122

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.99	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385661.7 E 400235.2 N	**Dates** 14/07/2020	**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				(0.30)	MADE GROUND: Brown silty gravelly SAND with frequent rootlets, rare brick fragments and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
0.30-0.90	D2			55.69	0.30	MADE GROUND: Brown and grey gravelly SAND with frequent whole brick and fragments, rare plastic and metal. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(0.60)			
1.00-2.00	D3			55.09	0.90	MADE GROUND: Black SAND and GRAVEL of predominantly ash and clinker with occasional oyster shells and rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(2.20)			
3.10-3.40	D4			52.89	3.10	MADE GROUND: Soft consistency black sandy CLAY with occasional pottery fragments and plant remains. Sand is fine to coarse. Moderate organic "bottom of pond" odour.		
					(0.30)			
				52.59	3.40	Complete at 3.40m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP123

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP124**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.75	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385545.8 E 400248.7 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 0.10-1.10	PP 42kPa D1			56.65	0.10	MADE GROUND: Brown gravelly SAND with frequent rootlets and occasional ash. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(1.90)	MADE GROUND: Predominantly whole bricks with brown gravelly SAND with occasional ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
2.00-2.50	DB2			54.75	2.00	Soft consistency sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium, subrounded. Potentially reworked.		
					(0.50)			
				54.25	2.50	Complete at 2.50m		

Remarks

Trial pit collapse at 2.50mbgl.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP124

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP125**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.85	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385606.9 E 400233.5 N	**Dates** 14/07/2020	**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				(0.30)	MADE GROUND: Brown sandy SILT with frequent rootlets and occasional brick fragments. Sand is fine to coarse.		
				55.55	0.30			
0.30-1.20	D2					MADE GROUND: Brown and grey very clayey sandy GRAVEL with frequent pottery, whole brick and fragments. Occassional tarmac. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(0.90)			
				54.65	1.20			
					(0.20)	MADE GROUND: Sandstone Slab.		
				54.45	1.40			
1.40-1.70	D3				(0.30)	MADE GROUND: Black gravelly SAND of predomiantly ash and clinker with occasional whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				54.15	1.70			
					(0.40)	MADE GROUND: Brown CLAY with rare ash.		
				53.75	2.10			
						MADE GROUND: Black gravelly SAND of predominantly ash and clinker with occasional whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(1.60)			
				52.15	3.70			
						Complete at 3.70m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP125

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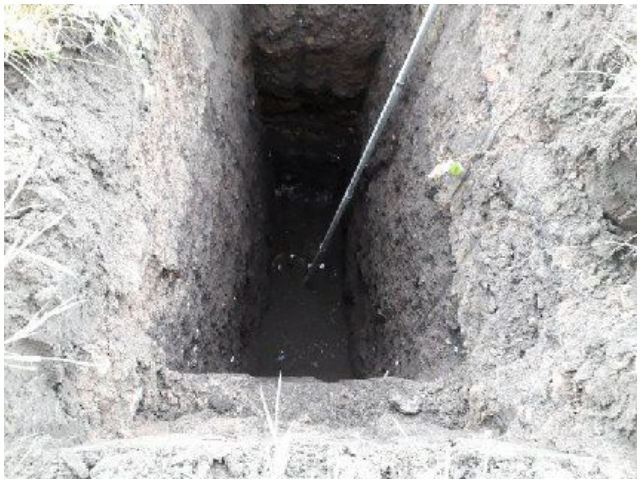
LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP126**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.01	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385651.8 E 400214.8 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	MADE GROUND: Dark brown silty SAND with frequent rootlets and occasional brick fragments. Sand is fine to coarse.		
0.30-0.70	D1			55.71	0.30			
					(0.40)	MADE GROUND: Brown gravelly Sand with occasional clay inclusions, whole brick and concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
0.70-1.70	D2			55.31	0.70			
						MADE GROUND: Black SAND and GRAVEL of predominantly ash and clinker with occasional brick fragments, pottery, oyster shells and smoking pipe stems. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
2.00-3.00	D3				(3.10)			
				52.21	3.80	Complete at 3.80m		



Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP126

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP127**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.07	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385570.7 E 400231.3 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-1.10	DB1			54.97	0.10	MADE GROUND: Grass over sandstone cobbled setts with coal tar.		
					(1.40)	MADE GROUND: Grey slightly gravelly SAND with rare pottery and glass. Sand is fine to coarse. Gravel is fine, subrounded. Very light, looks and feels like fly ash.		
				53.57	1.50	MADE GROUND: Grey to black gravelly SAND of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded. The above strata grades slowly into this one becomming more ash rich with depth.		
3.00-4.00	D2				(2.50)			
				51.07	4.00	Complete at 4.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP127

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP128**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.81	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385513.9 E 400207.2 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-1.00 -2.00 0.00-0.50	PP 113kPa PP 176kPa D1				(0.50)	MADE GROUND: Grey clayey GRAVEL. Gravel is fine to coarse, subangular of limestone.		
0.50-0.90	D2			55.31	0.50 (0.40)	MADE GROUND: Dark brown clayey gravelly SAND with frequent ash and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
0.90-1.90	DB3			54.91	0.90	Firm consistency brown and grey mottled slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subrounded of quartz and sandstone. Becoming hard and sandy with depth.		
					(1.50)			
				53.41	2.40	At 2.30mbgl a pottery pipe is present along the western wall of the trial pit within reworked clay.		
						Complete at 2.40m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP128

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.91	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385529 E 400207.6 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-1.00 0.10-1.00	PP 117kPa D1			55.81	0.10	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(0.90)	MADE GROUND: Black gravelly SAND with frequent ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded. Very compacted.		
1.00-1.90	DB2			54.91	1.00	Firm consistency brown and grey mottled sandy CLAY. Sand is fine to coarse.		
					(0.90)			
1.90-2.30	B3			54.01	1.90	Brown clayey SAND. Sand is fine to coarse. Very hard and recovered as gravel to cobble sized lumps. Possible weathered bedrock.		
					(0.40)			
				53.61	2.30	Complete at 2.30m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP129

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.63	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385526.1 E 400183.3 N	**Dates** 13/07/2020	**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				(1.20)	MADE GROUND: Brown slightly clayey gravelly SAND with frequent brick fragments, concrete, occasional ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
1.20-2.00	D2			54.43	1.20	MADE GROUND: Brown clayey very gravelly SAND with frequent whole brick and fragments, concrete, occasional slates, ash and rare glass. Sand is fine to coarse. Gravel is ifne to coarse, subangular to subrounded.		
					(0.80)			
				53.63	2.00	MADE GROUND: Light grey slightly clayey GRAVEL. Gravel is ifine to coarse, angular of limestone.		
					(0.30)	At 2.00mbg a cable was encountered in the east of the pit.		
				53.33	2.30	MADE GROUND: Brown clayey gravelly SAND with occasional whole brick and fragments, concrete and slates. Sand is fine to coarse. Gravel is fine to coarse, subangular of sandstone.		
3.00-4.00	D3				(1.70)			
				51.63	4.00	Complete at 4.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP130

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Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.23	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385544.7 E 400185.9 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	D1				(0.40)	MADE GROUND: Black gravelly SAND with frequent ash and clinker, occasional brick fragments and cobbles of sandstone with coal tar. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
0.40-1.40	D2			54.83	0.40	MADE GROUND: Brown silty SAND with occasional pottery and rare brick fragments. Sand is fine to coarse.		
					(2.60)			
3.00-4.00	D3			52.23	3.00	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with occasional oyster shells, cockles, smoking pipes and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(1.00)			
				51.23	4.00	Complete at 4.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP131

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP132**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 54.48	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385493.3 E 400165.6 N	**Dates** 13/07/2020	**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				(2.80)	MADE GROUND: Dark brown gravelley SAND with occasional brick fragments, concrete, pottery, rare metal, timber and concrete oversize. Sand is fine to coarse. Gravel is fine to coarse. Subangular to subrounded.		
				51.68	2.80	At 2.40mbgl in the east of the pit White sandy GRAVEL. Sand fine to coarse. Gravel fine to medium, subangular of limestone. At 2.80mbgl a pipe was uncovered within the gravel in the east of the pit.		
						Complete at 2.80m		

Remarks

Trial pit terminated at 2.80mbgl to prevent damage to pipe.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP132

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TP133**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.34	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385526.9 E 400136.8 N	**Dates** 14/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
-2.00 0.00-1.00	PP 74kPa D1				(1.70)	MADE GROUND: Grey brown clayey gravelly SAND with occasional whole brick and fragments. Concrete slab present at 1.00mbgl in the north of the trial pit.		
1.70-2.30	DB2			53.64	1.70	Stiff consistency orange slightly sandy CLAY. Sand is fine to coarse.		
					(0.60)			
				53.04	2.30	Complete at 2.30m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TP133

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR101A**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 54.93	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385573.1 E 400215.4 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.80)	MADE GROUND: Brown gravelly SAND with frequent whole brick and fragments and occasional concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				54.13	0.80			
					(1.00)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with occasional oyster shells. Sand is fine to coarse. gravel is fine to coarse, subangular to subrounded.		
				53.13	1.80			
					(1.70)	Firm brown CLAY with rare black silty organic inclusions.		
				51.43	3.50			
						Complete at 3.50m		

Plan

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR101

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR101B**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.18	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385568.7 E 400213.8 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Brown gravelly SAND with occasional brick fragments and concrete. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				54.78	0.40			
					(0.20)	MADE GROUND: CONCRETE. 10mm diameter rebar at 0.55mbgl.		
				54.58	0.60			
					(0.30)	MADE GROUND: Light grey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				54.28	0.90	Firm consistency brown CLAY.		
					(2.60)			
				51.68	3.50	Complete at 3.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR101B

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR101C**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.32	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385565.3 E 400213.9 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				55.02	(0.30) 0.30	MADE GROUND: Grey gravelly SAND with occasional brick and concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(3.20)	MADE GROUND: Brown sandy CLAY with occasional whole brick and fragments. Sand is fine to coarse.		
				51.82	3.50	Complete at 3.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR101C

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** TR102A
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.25	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385587.5 E 400252.8 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.50)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional whole brick and fragments. Sand is fine to coarse. gravel is fine to coarse, subangular.		
				54.75	1.50	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(1.50)			
				53.25	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR102A

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR102B**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.96	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385583.5 E 400254.5 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.50)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional whole brick and fragments. Sand is fine to coarse. gravel is fine to coarse, subangular.		
				54.46	1.50	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
					(1.00)			
				53.46	2.50	MADE GROUND: Firm consistency brown CLAY with rare brick fragments.		
					(0.50)			
				52.96	3.00	Complete at 3.00m		

Remarks

4.30m west from start of pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR102B

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** TR102C
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.25	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385581.5 E 400255.4 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.50)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional whole brick and fragments. Sand is fine to coarse. gravel is fine to coarse, subangular.		
				54.75	1.50			
					(0.50)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				54.25	2.00			
					(1.00)	MADE GROUND: Firm consistency brown CLAY with rare brick fragments.		
				53.25	3.00			
						Complete at 3.00m		

Remarks

6.60m west from start of pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR102C

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR102D**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.25	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385580.1 E 400255.9 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.50)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				54.75 54.75	1.50 1.50	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional whole brick and fragments. Sand is fine to coarse. gravel is fine to coarse, subangular. MADE GROUND: Firm consistency brown CLAY with rare brick fragments.		
					(1.50)			
				53.25	3.00	Complete at 3.00m		

Remarks

8.00m west from start of pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR102D

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR102E**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 56.47	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385575.2 E 400257.9 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.20)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				55.27	1.20			
					(0.30)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional whole brick and fragments. Sand is fine to coarse. gravel is fine to coarse, subangular.		
				54.97	1.50	MADE GROUND: Firm consistency brown CLAY with rare brick fragments.		
					(1.50)			
				53.47	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR102E

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR103A**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Trial Pit		56.97	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385594.2 E 400284.2 N	21/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.30)	MADE GROUND: Black gravelly SAND of predominantly ash and clinker with occasional pottery, sandstone slabs, whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				55.67	1.30			
					(1.20)	MADE GROUND: Firm consistency brown sandy gravelly CLAY with occasional brick fragments, pottery, rare cobbles, coal, bone, cockle and muscle shells. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				54.47	2.50			
					(1.50)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with rare oyster shells, smoking pipes and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				52.97	4.00	Complete at 4.00m		

Remarks

Scale (approx)	**Logged By**	**Figure No.**
1:40	PW	LKC 20 1120.TR103A

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR103B**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 57.40	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385590.3 E 400295.6 N	**Dates** 21/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				57.25	(0.15) 0.15	MADE GROUND: Brown silty SAND with frequent rootlets and rare brick fragments. Sand is fine to coarse.		
					(1.85)	Firm brown and grey mottled CLAY.		
				55.40	2.00	Complete at 2.00m		

Remarks

3.90m east from the edge of the trench ash appears beneath the topsoil becomming thicker further to the east.
5.10m east from the edge of the trial pit the ash is present to 1.10mbgl over the natural clay.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR103B

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR104A**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.52	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385590.8 E 400332.4 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				58.32	(0.20) 0.20	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(0.70)	MADE GROUND: Brown gravelly SAND with occasional tarmacadam, ash, brick fragments and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				57.62	0.90	Firm consistency brown CLAY. Edge of concrete slab encountered in the west of the trial pit from 0.90m to 1.10mbgl.		
					(1.60)			
				56.02	2.50	Complete at 2.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR104A

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** TR104B	
Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)** 58.60	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385596.9 E 400328.7 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				58.40	(0.20) 0.20	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(0.70)	MADE GROUND: Brown gravelly SAND with occasional tarmacadam, ash, brick fragments and pottery. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				57.70	0.90			
					(0.30)	MADE GROUND: Black Sands and Gravel of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				57.40	1.20			
					(1.30)	Firm consistency brown CLAY.		
				56.10	2.50	Complete at 2.50m		

Remarks

The natural clay slopes downwards from beneath the concrete to this poing 1.20mbgl 4.20m to the east of the concrete edge. Beyond this no clay can be seen and instead ash was noted deeper than 2.50mbgl.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR104B

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR105A**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.91	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385604.1 E 400356.1 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.90)	MADE GROUND: Brown gravelly SAND with frequent whole brick and fragments, occasional oversize masonry and concrete. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				58.01	0.90			
					(0.20)	MADE GROUND: CONCRETE.		
				57.81	1.10	Complete at 1.10m		

Remarks

Edge of concrete 7.50m east from start of pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR105A

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR105B**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.91	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385612.1 E 400355.2 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.90)	MADE GROUND: Brown gravelly SAND with frequent whole brick and fragments, occasional oversize masonry and concrete. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				58.01	0.90			
					(0.19)	MADE GROUND: Old TARMACADAM with brick crush.		
				57.82	1.09			
					(0.91)	MADE GROUND: Brown CLAY with rare brick fragments.		
				56.91	2.00			
						Complete at 2.00m		

Remarks

7.40m to 9.00m east from start of pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR105B

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR105C**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.79	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385613.7 E 400355 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				58.59	(0.20) 0.20	MADE GROUND: Brown gravely SAND with frequent whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
					(0.70)	MADE GROUND: BRICKWORK.		
				57.89	0.90			
					(0.20)	MADE GROUND: CONCRETE. No rebar.		
				57.69	1.10	MADE GROUND: Brown CLAY with rare brick fragments.		
					(0.90)			
				56.79	2.00	Complete at 2.00m		

Remarks

Concrete present from 9.00m to 10.90m east from start of pit.
Brickwork present from 9.10m to 10.60m east from the start of the pit.
Black pipe present half set into the concrete at 0.70mbgl and 10.10m east from the start of the pit.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR105C

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR105D**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 58.74	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385618 E 400354.4 N	**Dates** 20/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				58.64	0.10	MADE GROUND: Brown silty SAND with frequent rootlets. Sand is fine to coarse.		
					(1.30)	MADE GROUND: Brown gravelly SAND with frequent whole brick and fragments, occasional pottery, ash and clinker, pieces of clay and rare oyster shells. Sand is fine to coarse. Gravel is fine to coarse.		
				57.34	1.40	Firm consistency brown and grey mottled sandy CLAY with rare rootlets. Sand is fine to coarse. Potentially reworked in places with rare brick fragments present.		
					(1.60)			
				55.74	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR105D

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR106**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.07	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385518.9 E 400149.5 N	**Dates** 21/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.10)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional oversize, concrete, metal, whole brick and fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				53.97	1.10			
					(0.90)	MADE GROUND: Brown clayey gravelly SAND with occasional brick fragments and ash. Sand is fine to coarse. Gravel is fine to coarse, subangular of sandstone.		
				53.07	2.00			
					(0.50)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				52.57	2.50	Complete at 2.50m		

Remarks

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR106

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR107**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.52	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385536.9 E 400173.3 N	**Dates** 21/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(2.00)	MADE GROUND: Black gravelly SAND with occasional whole brick and fragments, rare pottery and metal. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				53.52	2.00			
					(1.80)	MADE GROUND: Black gravelly SAND with frequent ash, brick fragments and rare metal. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				51.72	3.80			
					(0.20)	MADE GROUND: Brown sandy CLAY with rare brick fragments. Sand is fine to coarse.		
				51.52	4.00	Complete at 4.00m		

Remarks

Brick wall encountered in the west of the trench from 2.00mbgl, surrounded by orange sand. Base of the wall not seen at 3.50mbgl.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR107

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Trial Pit Number** **TR108**
Machine : JCB 3CX **Method :**	**Dimensions**	**Ground Level (mOD)** 55.30	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385553.4 E 400200.7 N	**Dates** 21/07/2020	**Project Contractor** D&I	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	MADE GROUND: Brown gravelly SAND with frequent rootlets, occasional brick and concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular.		
				55.00	0.30			
				54.95	0.35	MADE GROUND: Orange sandy GRAVEL of predominantly brick crush. Sand is fine to coarse. Gravel is fine to coarse, angular.		
					(3.15)	MADE GROUND: Black SANDS and GRAVEL of predominantly ash and clinker with occasional whole brick and fragments, rare oyster shells and smoking pipes present with depth. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.		
				51.80	3.50	Complete at 3.50m		

Remarks

2.10m west from the edge of the pit a cable is present at 0.30mbgl.
2.30m west from the edge of the pit a gas pipe present at 0.30mbgl.
9.40m west from the edge of the pit a pipe is present at 0.60mbgl.
9.60m west from the edge of the pit a water pipe is present at 0.70mbgl.
10.00m west from the edge of the pit a cable is present at 0.50mbgl.
10.20m west from the edge of the pit a gas pipe present at 0.30mbgl.
1.00m west from the edge of the pit a water pipe is present at 0.60mbgl.
1.10m west from the edge of the pit a cable within a duct is present at 0.60mbgl.

Scale (approx)	Logged By	Figure No.
1:40	PW	LKC 20 1120.TR108

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH1**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		59.47	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385563.4 E 400337.9 N	13/07/2020	D&I	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	D1					(0.70)	MADE GROUND: Dark brown slightly silty gravelly SAND with occasonal rootlets, brick fragments and rare coal. Sand is fine to medium. Gravel is fine to medium and subangular compising mudstone.			
					58.77	0.70				
1.00	D2					(0.50)	MADE GROUND: Brown slightly gravelly slightly sandy CLAY with occional ash and rare clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone and mudstone.			
1.20-1.65	SPT N=17			2,3/4,4,3,6	58.27	1.20				
1.20-1.65	X3						Stiff to very stiff consistency brown slightly gravelly sandy silty CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone and mudstone.			
1.40-1.70	B4									
2.10-2.55	U5									
2.60	D6									
3.20-3.65	SPT N=23			2,4/5,5,6,7						
3.20-3.65	S7									
						(5.20)				
4.20-4.65	U8									
4.70	D9									
5.00-5.30	B10									
5.40-5.85	SPT N=43			8,9/10,10,11,12						
5.40-5.85	X11									
6.40-6.59	SPT 50/40			20,5/33,17	53.07	6.40	Very stiff consistency brown slightly sandy CLAY. Sand is fine to medium.			
6.40-6.60	X12									
						(1.60)				
7.50-7.70	SPT 50/50			18,7/28,22						
7.50-7.70	X13									

Remarks
Borehole dry.
Chiselling from 6.40m to 10.00m for 3.5 hours.

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH1

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH1**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		59.47	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385563.4 E 400337.9 N	13/07/2020	D&I	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
8.00-8.30	B14				51.47	8.00	Very stiff consistency brown slightyl gravelly CLAY. Gravel is fine to medium and subangular comprising sandstone.			
8.40-8.77 8.40-8.80	SPT 50/220 B15			10,10/14,16,20		(2.00)				
9.20-9.55 9.20-9.55	SPT 50/200 X16			10,12/14,20,16						
10.00-10.30 10.00-10.30	SPT 50/150 X17			10,14/21,29	49.47	10.00	Brown SANDSTONE.			
						(0.30)				
					49.17	10.30	Complete at 10.30m			

Remarks
Borehole dry.

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH1

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH2**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		57.21	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385599.9 E 400284.7 N	13/07/2020	D&I	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	D1					(0.90)	MADE GROUND: Black gravelly silty SAND with occasional ash, clinker, rare pottery fragments and coal fragments. Sand is fine to medium. Gravel is fine to medium and subangular comprising mudstone.			
					56.31	0.90				
1.00	D2						MADE GROUND: Brown gravelly sandy silty CLAY with occasional brick fragments, ash, rare clinker. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone and mudstone.			
1.20-1.65	SPT N=7			1,2/2,2,1,2						
1.20-1.65	X3									
2.00-2.54	X4									
2.50-2.80	B5					(3.40)				
3.30-3.75	SPT N=4			2,2/1,1,1,1						
3.30-3.75	X6									
					52.91	4.30				
4.40-4.85	SPT N=24			4,5/6,6,6,6			Stiff to very stiff consistency brown slightly gravelly sandy silty CLAY. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
4.40-4.85	X7									
5.00-5.30	B8									
5.50-5.95	UB9					(2.40)				
					50.51	6.70				
6.90-7.30	SPT 50/250			5,10/12,13,15,10			Very stiff consistency brown slightly gravelly CLAY. Gravel is fine to medium and subangular comprising mudstone.			
6.90-7.30	X10					(0.80)				
7.30-7.50	B11									
7.50-7.70	SPT 50/50			18,7/28,22	49.71	7.50	Grey and brown shaley MUDSTONE.			
7.50-7.70	X12									
7.80	D13									

Remarks
Borehole dry.
Chiselling from 6.90m to 8.50m for 1.5 hours.

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH2

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH2**
Boring Method Cable Percussion	**Casing Diameter**	**Ground Level (mOD)** 57.21	**Client** Far East Consortium International Limited	**Job Number** LKC 20 1120
	Location 385599.9 E 400284.7 N	**Dates** 13/07/2020	**Project Contractor** D&I	**Sheet** 2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(1.20)				
8.50-8.70 8.50-8.70	SPT 50/50 X14			20,5/32,18	48.51	8.70	Complete at 8.70m			

Remarks
Borehole dry.

Scale (approx)	Logged By
1:40	JH

Figure No.
LKC 20 1120.BH2

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Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		57.50	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385529.9 E 400259 N	13/07/2020	D&I	1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	D1					(0.50)	MADE GROUND: Blackish brown gravelly silty SAND with occasional rootlets and rare brick fragments. Sand is fine to medium. Gravel is fine to coarse and rounded to angular comprising sandstone and mudstone.			
					57.00	0.50				
0.70	D2						Soft to stiff consistency grey and brown slightly gravelly sandy silty CLAY with rare cobbles. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
1.20-1.65	SPT N=22			2,2/4,5,6,7						
1.20-1.65	X3									
1.50-1.80	B4									
2.10-2.55	SPT N=26			4,5/5,6,7,8						
2.10-2.50	X5									
						(3.80)				
2.80-2.90	X6									
3.00-3.30	B7									
3.70-3.95	SPT 50/100			11,14/30,20						
3.70-3.95	X8									
4.30-4.70	SPT 50/250			7,8/14,12,18,6	53.20	4.30	Very stiff brown slightlty gravelly CLAY. Gravel is fine to coarse and subangular comprising sandstone.			
4.30-4.70	X9									
5.00-5.30	B10					(1.60)				
5.50-5.90	SPT 50/250			6,8/11,12,17,10						
5.50-5.90	X11									
					51.60	5.90	Complete at 5.90m			

Remarks
Borehole dry.
Chiselling from 2.80m to 5.50m for 2 hours.

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH3

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH4**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		55.44	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385510.3 E 400189 N	13/07/2020	D&I	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	D1					(0.70)	MADE GROUND: Dark brown gravelly clayey SAND with frequent brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded.			
0.80	D2				54.74	0.70	MADE GROUND: Brown gravelly sandy silty CLAY with frequent ash, occasional brick fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Less gravel content with depth.			
1.20-1.65	X3									
1.70-2.00	B4									
2.10-2.55	X5									
3.30-3.75	X6									
4.40-4.85	X7					(7.40)				
5.00-5.30	B8									
5.50-5.95	X9									
7.10-7.55	X10									

Remarks

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH4

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Collyhurst Village, Manchester	**Borehole Number** **BH4**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion		55.44	Far East Consortium International Limited	LKC 20 1120
	Location	**Dates**	**Project Contractor**	**Sheet**
	385510.3 E 400189 N	13/07/2020	D&I	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
8.10-8.55	X11				47.34	8.10	MADE GROUND: Sandstone fill.			
						(2.20)				
9.60-10.05	X12								▼1	
					45.14	10.30			▽1	
10.40-10.65	X13			Fast(1) at 10.30m, rose to 9.70m in 5 mins.			Purple and grey MUDSTONE with sandstone inclusions.			
						(1.20)				
11.30-11.50	X14				43.94	11.50	Complete at 11.50m			

Remarks
Chiselling from 10.30m to 11.30m for 1 hour.

Scale (approx)	**Logged By**
1:40	JH

Figure No.
LKC 20 1120.BH4

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Appendix C

Certificates of Analysis – Soil

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18141-1
Initial Date of Issue:	28-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Chris Hughes Contaminated Land
Project	LKC 20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	15-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	9		
Turnaround (Wkdays):	5	**Results Due:**	28-Jul-2020
Date Approved:	28-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141
Quotation No.:				**Chemtest Sample ID.:**	1031984	1031985	1031986	1031991	1031995	1031998	1031999	1032000	1032001
				Client Sample ID.:	WS15 D1	WS15 D2	WS17 D1	WS18 D2	WS16 D2	WS14B D1	WS14B D2	WS14B D3	WS10 D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.0	0.8	0.6	0.4	1.5	0.4	1.6	4.0	0.0
				Bottom Depth (m):	0.7	1.0	1.0	1.0	1.5	1.0	2.0	4.5	0.3
				Date Sampled:	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020
				Asbestos Lab:	DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
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	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-		-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	3.9	9.6	18	14	26	3.8	18	26	19
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Black	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Loam	Sand
Chromatogram (TPH)	N			N/A					See Attached		See Attached		
pH	M	2010		4.0	8.4	8.3	8.1	8.1	7.4	10.7	8.4		7.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40					0.50		1.8		
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010							
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	0.35	0.018	0.039	0.50	< 0.010		< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010							
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010							
Cyanide (Free)	M	2300	mg/kg	0.50					< 0.50		< 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50					5.2		1.5		
Arsenic	M	2450	mg/kg	1.0	18		39	18	140	42	51		18
Cadmium	M	2450	mg/kg	0.10	1.2		0.54	0.29	0.68	0.63	0.77		1.5
Chromium	M	2450	mg/kg	1.0	4.4		16	22	33	33	24		290
Copper	M	2450	mg/kg	0.50	6.8		130	48	210	77	340		74
Mercury	M	2450	mg/kg	0.10	< 0.10		1.6	0.40	11	0.87	2.2		0.76
Nickel	M	2450	mg/kg	0.50	11		31	23	88	32	39		22
Lead	M	2450	mg/kg	0.50	29		430	300	600	470	500		250
Selenium	M	2450	mg/kg	0.20	< 0.20		0.60	0.36	1.4	< 0.20	0.75		0.58
Vanadium	U	2450	mg/kg	5.0	5.5		38	26	97	37	38		18
Zinc	M	2450	mg/kg	0.50	45		250	150	420	200	280		190
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	3.5		6.9	3.8	38	5.0	22	13	4.8
Fuel Type	N	2670		N/A					N/A		PAH	PAH	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0		1.4	< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0		29	4.7	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0		84	8.6	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0					< 1.0		100	15	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0		230	77	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0		120	37	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

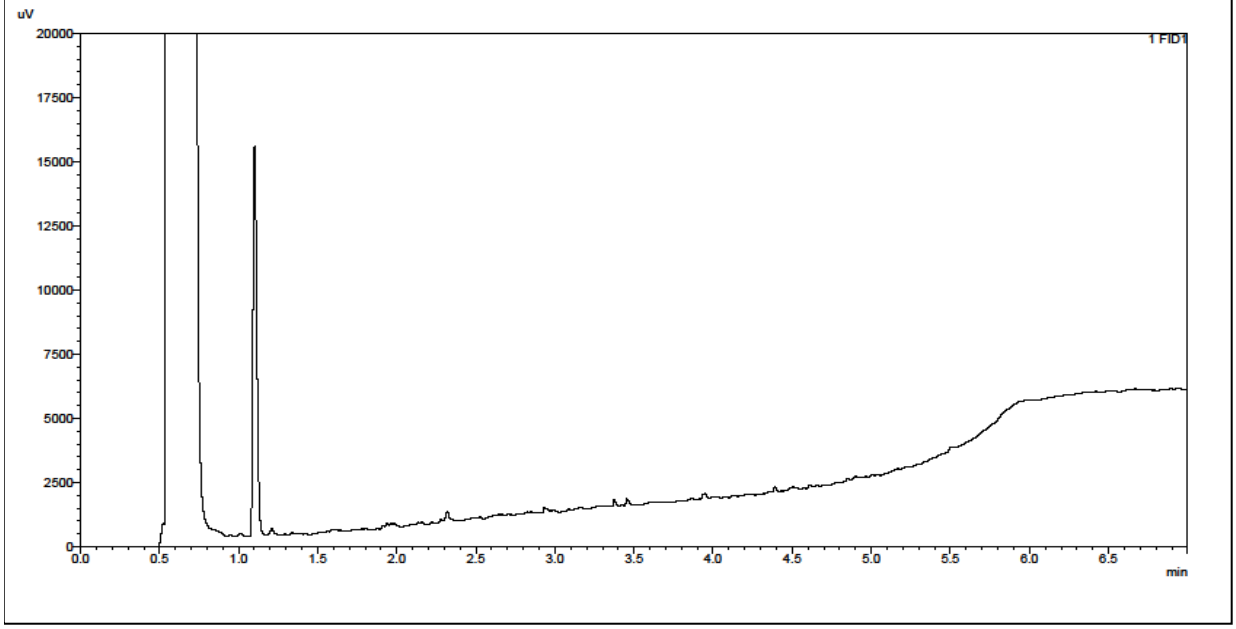
Client: LK Consult			**Chemtest Job No.:**		20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141
Quotation No.:			**Chemtest Sample ID.:**		1031984	1031985	1031986	1031991	1031995	1031998	1031999	1032000	1032001
			Client Sample ID.:		WS15 D1	WS15 D2	WS17 D1	WS18 D2	WS16 D2	WS14B D1	WS14B D2	WS14B D3	WS10 D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	0.8	0.6	0.4	1.5	0.4	1.6	4.0	0.0
			Bottom Depth (m):		0.7	1.0	1.0	1.0	1.5	1.0	2.0	4.5	0.3
			Date Sampled:		13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020
			Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0		570	140	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0		23	< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0		88	14	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0		600	110	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0					< 1.0		2000	500	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0		6400	1800	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0		410	85	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0		9500	2500	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0					< 10		10000	2600	
Benzene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Toluene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Ethylbenzene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
o-Xylene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.69	< 0.10	0.27	13		0.76
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.29	< 0.10	0.12	6.0		0.12
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	1.5	< 0.10	0.25	110		2.8
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	1.4	< 0.10	0.16	66		1.9
Phenanthrene	M	2800	mg/kg	0.10	0.16		< 0.10	12	1.5	2.2	450		11
Anthracene	M	2800	mg/kg	0.10	0.12		< 0.10	3.5	0.34	0.50	120		2.9
Fluoranthene	M	2800	mg/kg	0.10	0.26		< 0.10	19	2.5	4.2	510		13
Pyrene	M	2800	mg/kg	0.10	0.25		< 0.10	17	2.7	4.0	430		11
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.18		< 0.10	8.5	1.6	2.2	190		5.7
Chrysene	M	2800	mg/kg	0.10	0.20		< 0.10	7.7	1.5	2.1	190		5.3
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.26		< 0.10	10	2.4	3.2	210		6.8
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	3.9	0.72	1.1	79		2.3
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.18		< 0.10	9.2	2.0	2.9	170		5.7
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.20		< 0.10	6.6	1.7	2.3	86		4.0
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.12		< 0.10	1.1	0.36	0.39	23		0.74
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.11		< 0.10	4.7	1.3	1.6	100		3.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	2.0		< 2.0	110	19	28	2800		77
Total Phenols	M	2920	mg/kg	0.30					< 0.30		< 0.30		

TPH Chromatogram on Soil Sample: 1031995

<Sample Information>

Sample Name : 1031995 20-18141
Data Filename : 24 July 2020_24072020_1031995 20-18141_075.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 38
Date Acquired : 24/07/2020 22:28:22
Date Processed : 24/07/2020

<Chromatogram>

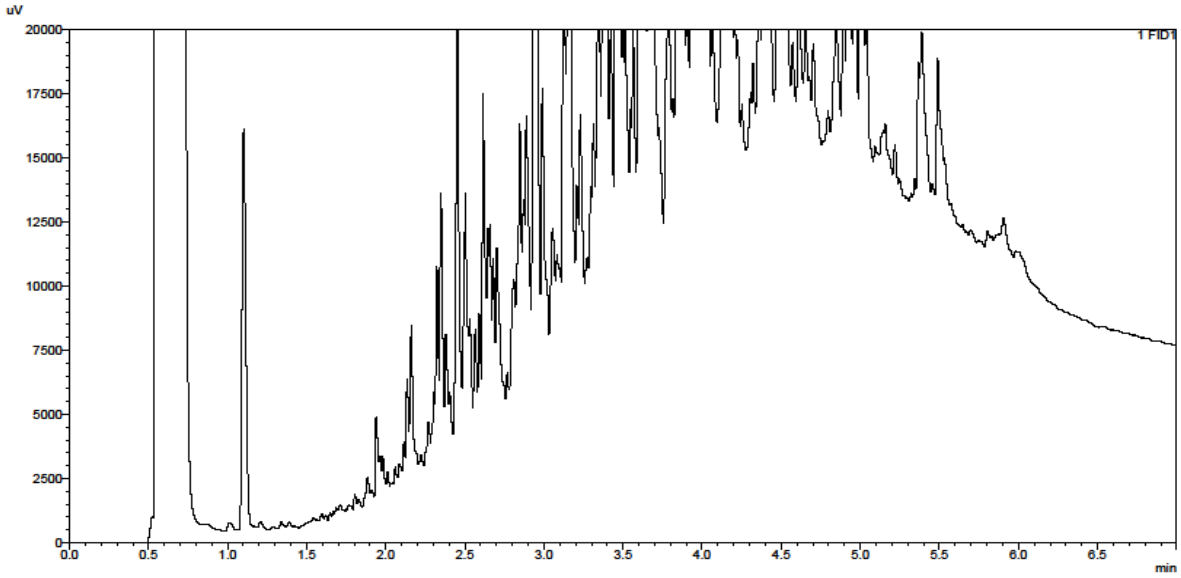


TPH Chromatogram on Soil Sample: 1031999

<Sample Information>

Sample Name : 1031999 20-18141
Data Filename : 24 July 2020_24072020_1031999 20-18141_077.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 39
Date Acquired : 24/07/2020 22:40:54
Date Processed : 24/07/2020

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18300-1
Initial Date of Issue:	28-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Contaminated Land Paul Quimby
Project	LKC 20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	16-Jul-2020
Order No.:	737856	**Date Instructed:**	22-Jul-2020
No. of Samples:	10		
Turnaround (Wkdays):	5	**Results Due:**	28-Jul-2020
Date Approved:	28-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Bulk Identification Certificate

Client: LK Consult

Site Address:

Date Sampled: 14-Jul-2020

Date Received: 16-Jul-2020

Your Ref.:

Project: LKC 20 1120 Rochdale Road, Collyhurst

Job Number: 20-18300

No Samples:

Date Reported: 28-Jul-2020

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1032752			TP122/ACM	0.50		2185	U	COVENTRY	Cement	Chrysotile

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300
Quotation No.:				**Chemtest Sample ID.:**	1032741	1032743	1032747	1032750	1032753	1032757	1032760	1032762	1032764
				Sample Location:	TP117/D2	TP120/D1	TP125/D2	TP122/D2	TP126/D1	TP123/D2	TP121/D1	TP129/D1	TP133/D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.20	0.10	0.30	0.30	0.30	0.30	0.20	0.10	0.00
				Bottom Depth (m):	1.20	0.80	1.20	0.80	0.70	0.90	1.10	1.00	1.00
				Date Sampled:	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	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	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	18	12	11	11	12	13	11	16	16
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached						See Attached		
pH	M	2010		4.0	9.0	9.4	9.4	9.6	8.5	10.6	10.4	8.4	8.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.97						0.62		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.13	0.069	0.036	0.21	< 0.010	0.42	0.87	0.46	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50						< 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50	2.3						< 0.50		
Arsenic	M	2450	mg/kg	1.0	50	22	24	22	41	34	16	37	14
Cadmium	M	2450	mg/kg	0.10	1.2	0.58	0.49	0.71	0.74	0.33	0.27	0.34	0.66
Chromium	M	2450	mg/kg	1.0	20	28	17	75	27	20	16	20	29
Copper	M	2450	mg/kg	0.50	220	64	53	57	250	78	32	140	51
Mercury	M	2450	mg/kg	0.10	1.3	0.53	0.26	0.53	1.2	0.73	0.53	0.70	0.49
Nickel	M	2450	mg/kg	0.50	57	19	21	22	36	23	18	58	23
Lead	M	2450	mg/kg	0.50	490	240	120	210	260	230	130	170	170
Selenium	M	2450	mg/kg	0.20	1.1	< 0.20	< 0.20	0.32	0.33	< 0.20	0.41	1.6	0.25
Vanadium	U	2450	mg/kg	5.0	35	24	20	22	29	29	18	56	25
Zinc	M	2450	mg/kg	0.50	200	120	100	180	200	89	55	82	110
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	24	2.9	5.5	4.7	7.1	4.8	3.1	38	5.2
Fuel Type	N	2670		N/A	PAH						PAH		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	130						< 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	130						< 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0						< 1.0		

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

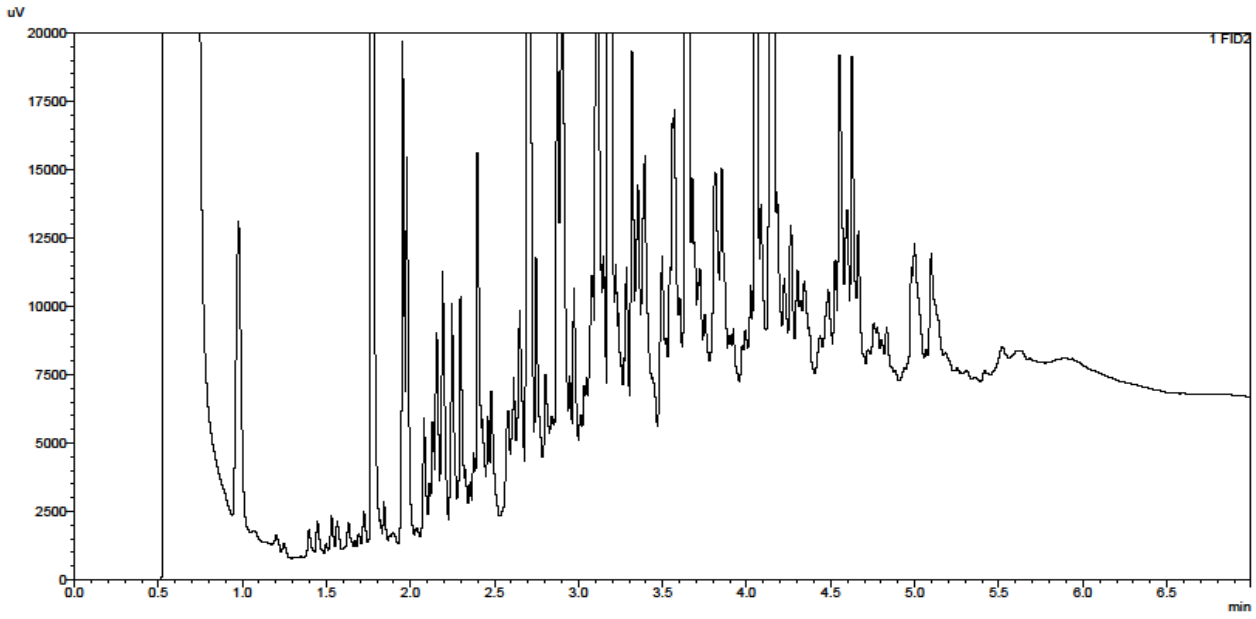
Client: LK Consult			**Chemtest Job No.:**		20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300
Quotation No.:			**Chemtest Sample ID.:**		1032741	1032743	1032747	1032750	1032753	1032757	1032760	1032762	1032764
			Sample Location:		TP117/D2	TP120/D1	TP125/D2	TP122/D2	TP126/D1	TP123/D2	TP121/D1	TP129/D1	TP133/D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.10	0.30	0.30	0.30	0.30	0.20	0.10	0.00
			Bottom Depth (m):		1.20	0.80	1.20	0.80	0.70	0.90	1.10	1.00	1.00
			Date Sampled:		14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	110						< 1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	240						< 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	920						10		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	2800						< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	65						< 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	4200						10		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	4300						10		
Benzene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Toluene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
o-Xylene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Naphthalene	M	2800	mg/kg	0.10	19	0.31	1.7	0.52	2.6	0.36	< 0.10	1.2	1.3
Acenaphthylene	N	2800	mg/kg	0.10	3.1	0.13	4.0	0.17	0.41	0.18	< 0.10	0.55	0.47
Acenaphthene	M	2800	mg/kg	0.10	7.5	0.54	3.5	0.64	0.98	0.59	< 0.10	1.0	1.0
Fluorene	M	2800	mg/kg	0.10	8.1	0.41	5.6	0.60	1.2	0.44	< 0.10	1.0	1.0
Phenanthrene	M	2800	mg/kg	0.10	68	5.2	54	5.8	8.8	6.3	1.7	9.4	9.7
Anthracene	M	2800	mg/kg	0.10	15	1.1	13	1.6	1.9	1.4	0.43	2.6	2.0
Fluoranthene	M	2800	mg/kg	0.10	69	8.8	60	8.6	9.0	9.9	2.6	14	14
Pyrene	M	2800	mg/kg	0.10	68	8.0	49	7.2	9.3	9.1	2.6	16	13
Benzo[a]anthracene	M	2800	mg/kg	0.10	39	4.4	28	4.3	4.8	4.4	1.6	14	6.9
Chrysene	M	2800	mg/kg	0.10	34	3.8	22	3.5	4.4	4.1	1.2	12	5.9
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	42	5.2	29	4.6	5.6	5.1	1.8	21	7.9
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	16	1.7	11	1.4	1.9	1.6	0.52	7.8	2.6
Benzo[a]pyrene	M	2800	mg/kg	0.10	43	4.6	29	4.3	5.2	5.1	1.7	25	7.6
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	29	3.3	20	2.8	3.2	3.5	1.2	18	5.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	6.1	0.73	3.3	0.53	0.66	0.60	0.27	3.9	0.73
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	23	2.7	14	1.9	2.6	2.3	1.0	16	4.2
Total Of 16 PAH's	N	2800	mg/kg	2.0	490	51	350	49	63	55	17	160	83
Total Phenols	M	2920	mg/kg	0.30	< 0.30						< 0.30		

TPH Chromatogram on Soil Sample: 1032741

<Sample Information>

Sample Name : 1032741 20-18300
Data Filename : 23 July 2020_23072020_1032741 20-18300_044.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 97
Date Acquired : 23/07/2020 19:13:59
Date Processed : 23/07/2020

<Chromatogram>

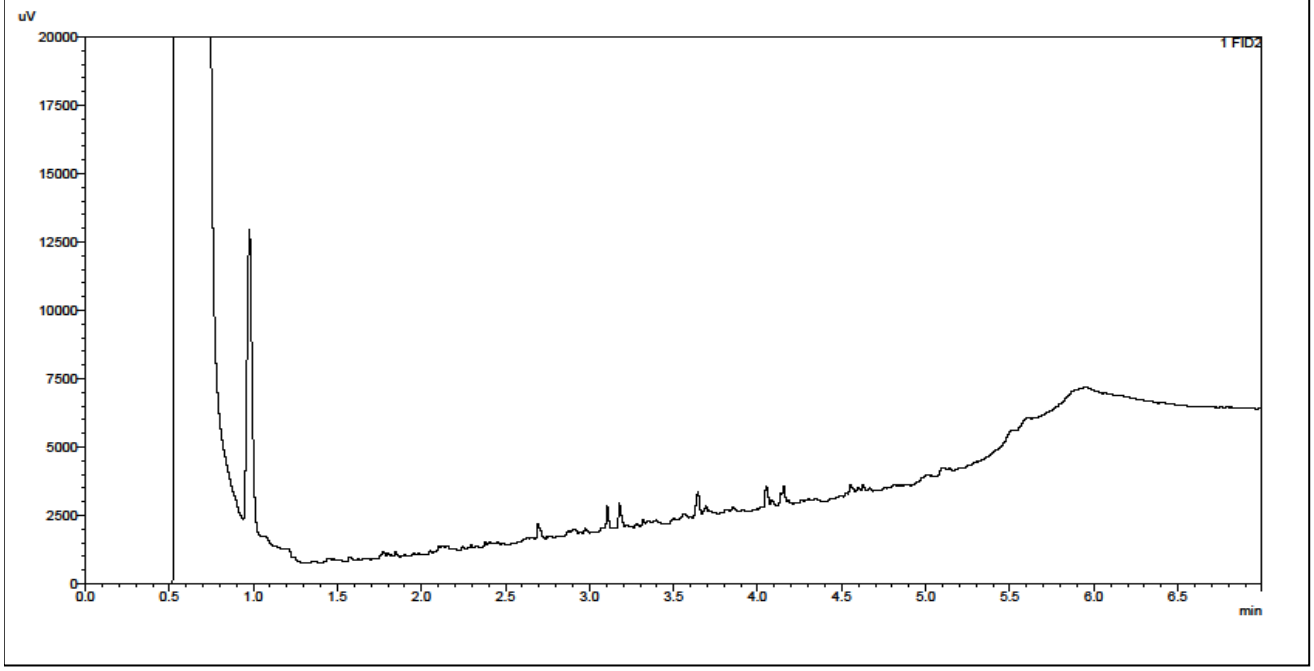


TPH Chromatogram on Soil Sample: 1032760

<Sample Information>

Sample Name : 1032760 20-18300
Data Filename : 23 July 2020_23072020_1032760 20-18300_046.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 98
Date Acquired : 23/07/2020 19:27:09
Date Processed : 23/07/2020

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	20-18300-2		
Initial Date of Issue:	28-Jul-2020	**Date of Re-Issue:**	03-Sep-2020
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Contaminated Land Paul Quimby		
Project	LKC 20 1120 Rochdale Road, Collyhurst		
Quotation No.:		**Date Received:**	16-Jul-2020
Order No.:	737856	**Date Instructed:**	22-Jul-2020
No. of Samples:	10		
Turnaround (Wkdays):	31	**Results Due:**	03-Sep-2020
Date Approved:	03-Sep-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Bulk Identification Certificate

Client: LK Consult

Site Address:

Date Sampled: 14-Jul-2020

Date Received: 16-Jul-2020

Your Ref.:

Project: LKC 20 1120 Rochdale Road, Collyhurst

Job Number: 20-18300

No Samples:

Date Reported: 28-Jul-2020

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1032752			TP122/ACM	0.50		2185	U	COVENTRY	Cement	Chrysotile

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Leachate

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**		20-18300
Quotation No.:				**Chemtest Sample ID.:**		1032741
				Sample Location:		TP117/D2
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		1.20
				Date Sampled:		14-Jul-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
C2 Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0
C2 Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
C2 Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	10	< 10
Total Organic Carbon	U	1610	2:1	mg/l	2.0	6.8
Benzene	U	1760	2:1	µg/l	1.0	< 1.0
Toluene	U	1760	2:1	µg/l	1.0	< 1.0
Ethylbenzene	U	1760	2:1	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
o-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	1.0	< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300
Quotation No.:				**Chemtest Sample ID.:**	1032741	1032743	1032747	1032750	1032753	1032757	1032760	1032762	1032764
				Sample Location:	TP117/D2	TP120/D1	TP125/D2	TP122/D2	TP126/D1	TP123/D2	TP121/D1	TP129/D1	TP133/D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.20	0.10	0.30	0.30	0.30	0.30	0.20	0.10	0.00
				Bottom Depth (m):	1.20	0.80	1.20	0.80	0.70	0.90	1.10	1.00	1.00
				Date Sampled:	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	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	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	18	12	11	11	12	13	11	16	16
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached						See Attached		
pH	M	2010		4.0	9.0	9.4	9.4	9.6	8.5	10.6	10.4	8.4	8.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.97						0.62		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.13	0.069	0.036	0.21	< 0.010	0.42	0.87	0.46	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50						< 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50	2.3						< 0.50		
Arsenic	M	2450	mg/kg	1.0	50	22	24	22	41	34	16	37	14
Cadmium	M	2450	mg/kg	0.10	1.2	0.58	0.49	0.71	0.74	0.33	0.27	0.34	0.66
Chromium	M	2450	mg/kg	1.0	20	28	17	75	27	20	16	20	29
Copper	M	2450	mg/kg	0.50	220	64	53	57	250	78	32	140	51
Mercury	M	2450	mg/kg	0.10	1.3	0.53	0.26	0.53	1.2	0.73	0.53	0.70	0.49
Nickel	M	2450	mg/kg	0.50	57	19	21	22	36	23	18	58	23
Lead	M	2450	mg/kg	0.50	490	240	120	210	260	230	130	170	170
Selenium	M	2450	mg/kg	0.20	1.1	< 0.20	< 0.20	0.32	0.33	< 0.20	0.41	1.6	0.25
Vanadium	U	2450	mg/kg	5.0	35	24	20	22	29	29	18	56	25
Zinc	M	2450	mg/kg	0.50	200	120	100	180	200	89	55	82	110
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	24	2.9	5.5	4.7	7.1	4.8	3.1	38	5.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0						< 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	130						< 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	130						< 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0						< 1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0						< 1.0		

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

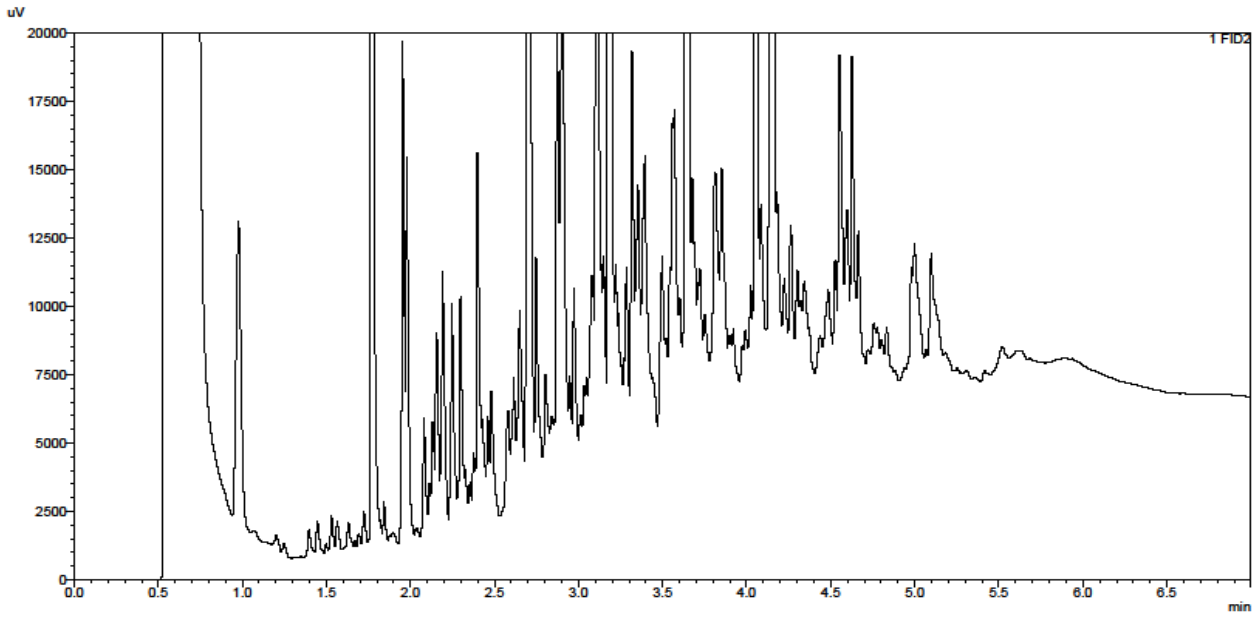
Client: LK Consult			**Chemtest Job No.:**		20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300	20-18300
Quotation No.:			**Chemtest Sample ID.:**		1032741	1032743	1032747	1032750	1032753	1032757	1032760	1032762	1032764
			Sample Location:		TP117/D2	TP120/D1	TP125/D2	TP122/D2	TP126/D1	TP123/D2	TP121/D1	TP129/D1	TP133/D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.10	0.30	0.30	0.30	0.30	0.20	0.10	0.00
			Bottom Depth (m):		1.20	0.80	1.20	0.80	0.70	0.90	1.10	1.00	1.00
			Date Sampled:		14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	110						< 1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	240						< 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	920						10		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	2800						< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	65						< 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	4200						10		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	4300						10		
Benzene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Toluene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
o-Xylene	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0						< 1.0		
Naphthalene	M	2800	mg/kg	0.10	19	0.31	1.7	0.52	2.6	0.36	< 0.10	1.2	1.3
Acenaphthylene	N	2800	mg/kg	0.10	3.1	0.13	4.0	0.17	0.41	0.18	< 0.10	0.55	0.47
Acenaphthene	M	2800	mg/kg	0.10	7.5	0.54	3.5	0.64	0.98	0.59	< 0.10	1.0	1.0
Fluorene	M	2800	mg/kg	0.10	8.1	0.41	5.6	0.60	1.2	0.44	< 0.10	1.0	1.0
Phenanthrene	M	2800	mg/kg	0.10	68	5.2	54	5.8	8.8	6.3	1.7	9.4	9.7
Anthracene	M	2800	mg/kg	0.10	15	1.1	13	1.6	1.9	1.4	0.43	2.6	2.0
Fluoranthene	M	2800	mg/kg	0.10	69	8.8	60	8.6	9.0	9.9	2.6	14	14
Pyrene	M	2800	mg/kg	0.10	68	8.0	49	7.2	9.3	9.1	2.6	16	13
Benzo[a]anthracene	M	2800	mg/kg	0.10	39	4.4	28	4.3	4.8	4.4	1.6	14	6.9
Chrysene	M	2800	mg/kg	0.10	34	3.8	22	3.5	4.4	4.1	1.2	12	5.9
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	42	5.2	29	4.6	5.6	5.1	1.8	21	7.9
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	16	1.7	11	1.4	1.9	1.6	0.52	7.8	2.6
Benzo[a]pyrene	M	2800	mg/kg	0.10	43	4.6	29	4.3	5.2	5.1	1.7	25	7.6
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	29	3.3	20	2.8	3.2	3.5	1.2	18	5.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	6.1	0.73	3.3	0.53	0.66	0.60	0.27	3.9	0.73
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	23	2.7	14	1.9	2.6	2.3	1.0	16	4.2
Total Of 16 PAH's	N	2800	mg/kg	2.0	490	51	350	49	63	55	17	160	83
Total Phenols	M	2920	mg/kg	0.30	< 0.30						< 0.30		

TPH Chromatogram on Soil Sample: 1032741

<Sample Information>

Sample Name : 1032741 20-18300
Data Filename : 23 July 2020_23072020_1032741 20-18300_044.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 97
Date Acquired : 23/07/2020 19:13:59
Date Processed : 23/07/2020

<Chromatogram>

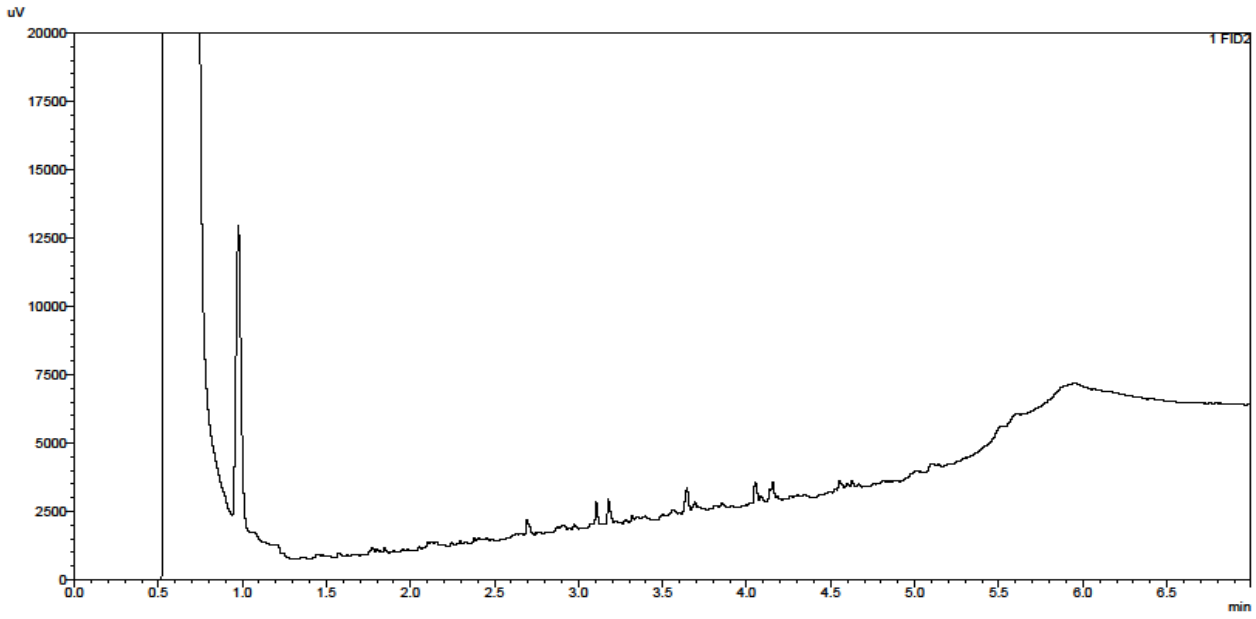


TPH Chromatogram on Soil Sample: 1032760

<Sample Information>

Sample Name : 1032760 20-18300
Data Filename : 23 July 2020_23072020_1032760 20-18300_046.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 98
Date Acquired : 23/07/2020 19:27:09
Date Processed : 23/07/2020

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-18300	1032741	2	TP117/D2			0.20	No	N/A
20-18300	1032741	S	TP117/D2			0.20	No	PAH
20-18300	1032760	S	TP121/D1			0.20		PAH

Test Methods

SOP	Title	Parameters included	Method summary
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
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
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by ‘Aquakem 600’ Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Test Methods

SOP	Title	Parameters included	Method summary
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*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18317-1
Initial Date of Issue:	28-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Contaminated Land Paul Quimby
Project	LKC 20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	16-Jul-2020
Order No.:	737856	**Date Instructed:**	22-Jul-2020
No. of Samples:	8		
Turnaround (Wkdays):	5	**Results Due:**	28-Jul-2020
Date Approved:	28-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18317	20-18317	20-18317	20-18317	20-18317	20-18317	20-18317	20-18317
Quotation No.:				**Chemtest Sample ID.:**	1032884	1032885	1032886	1032889	1032891	1032893	1032894	1032896
				Sample Location:	WS9/D1	WS9/D2	WS11D/D1	WS12/D2	WS6/D1	WS6/D3	WS7C/D1	WS8/D2
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.00	1.50	0.00	0.30	0.00	0.80	0.00	0.80
				Bottom Depth (m):	0.60	1.80	0.40	1.00	0.30	1.00	0.60	1.50
				Date Sampled:	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
				Asbestos Lab:	DURHAM		DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
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
ACM Detection Stage	U	2192		N/A	-		-	-	-		-	-
Moisture	N	2030	%	0.020	18	12	11	12	10	15	10	13
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A				See Attached				See Attached
pH	M	2010		4.0	8.2	8.2	8.2	8.6	8.7	8.5	8.5	8.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40				< 0.40				0.43
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010				< 0.010		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.027	< 0.010	< 0.010	< 0.010	< 0.010	0.010	< 0.010	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010				0.014		
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010				< 0.010		
Cyanide (Free)	M	2300	mg/kg	0.50				< 0.50				< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50				< 0.50				< 0.50
Arsenic	M	2450	mg/kg	1.0	99		22	14	29		29	20
Cadmium	M	2450	mg/kg	0.10	0.25		11	0.89	0.72		1.7	0.39
Chromium	M	2450	mg/kg	1.0	30		56	14	21		30	21
Copper	M	2450	mg/kg	0.50	230		150	35	77		120	51
Mercury	M	2450	mg/kg	0.10	3.0		5.1	0.46	0.47		0.65	0.20
Nickel	M	2450	mg/kg	0.50	86		37	15	29		38	35
Lead	M	2450	mg/kg	0.50	710		270	56	200		350	110
Selenium	M	2450	mg/kg	0.20	1.1		0.36	< 0.20	< 0.20		< 0.20	0.21
Vanadium	U	2450	mg/kg	5.0	71		35	17	30		31	26
Zinc	M	2450	mg/kg	0.50	190		190	44	130		270	88
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50		< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	26		5.7	1.5	7.6		6.7	5.0
Fuel Type	N	2670		N/A				PAH				PAH
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

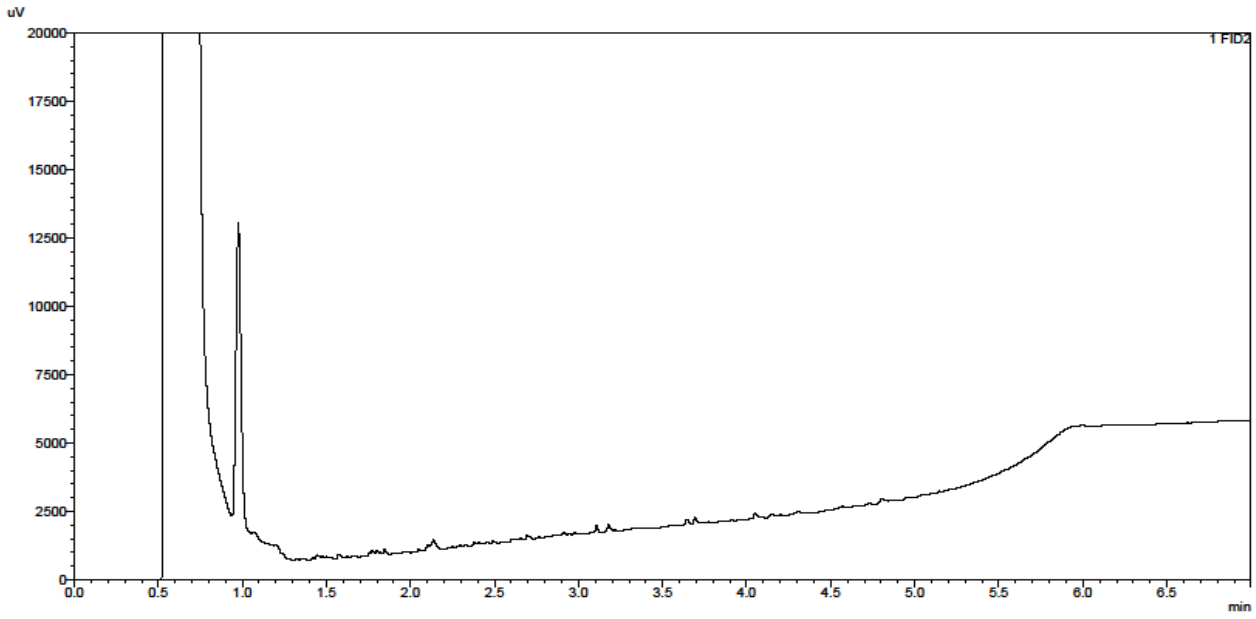
Client: LK Consult		**Chemtest Job No.:**			20-18317	20-18317	20-18317	20-18317	20-18317	20-18317	20-18317	20-18317
Quotation No.:		**Chemtest Sample ID.:**			1032884	1032885	1032886	1032889	1032891	1032893	1032894	1032896
		Sample Location:			WS9/D1	WS9/D2	WS11D/D1	WS12/D2	WS6/D1	WS6/D3	WS7C/D1	WS8/D2
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	1.50	0.00	0.30	0.00	0.80	0.00	0.80
		Bottom Depth (m):			0.60	1.80	0.40	1.00	0.30	1.00	0.60	1.50
		Date Sampled:			14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020	14-Jul-2020
		Asbestos Lab:			DURHAM		DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0				< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0				< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0				9.3				9.9
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				54
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				9.3				64
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				< 10				64
Benzene	M	2760	µg/kg	1.0				< 1.0				< 1.0
Toluene	M	2760	µg/kg	1.0				< 1.0				< 1.0
Ethylbenzene	M	2760	µg/kg	1.0				< 1.0				< 1.0
m & p-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0
o-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0				< 1.0				< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10		0.37	< 0.10	0.55		< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		0.13	< 0.10	0.22		< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		0.27	< 0.10	0.81		< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10		0.24	< 0.10	0.94		< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.93		2.6	0.46	12		3.8	2.4
Anthracene	M	2800	mg/kg	0.10	0.23		0.64	0.12	2.9		0.96	0.68
Fluoranthene	M	2800	mg/kg	0.10	1.4		4.3	0.60	21		6.1	4.7
Pyrene	M	2800	mg/kg	0.10	1.3		4.0	0.53	18		5.4	4.3
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.0		2.2	0.28	10		3.1	2.5
Chrysene	M	2800	mg/kg	0.10	0.89		2.0	0.25	8.4		2.7	2.1
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	1.3		3.0	0.40	13		4.1	3.4
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.45		0.98	0.11	4.6		1.4	1.0
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.2		2.7	0.33	11		3.7	3.1
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.1		1.8	< 0.10	8.3		2.6	2.4
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		0.39	< 0.10	1.3		0.42	0.42
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.89		1.5	< 0.10	6.3		1.9	2.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	11		27	3.1	120		36	29
Total Phenols	M	2920	mg/kg	0.30				< 0.30				< 0.30

TPH Chromatogram on Soil Sample: 1032889

<Sample Information>

Sample Name : 1032889 20-18317
Data Filename : 23 July 2020_23072020_1032889 20-18317_040.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 95
Date Acquired : 23/07/2020 18:47:42
Date Processed : 23/07/2020

<Chromatogram>

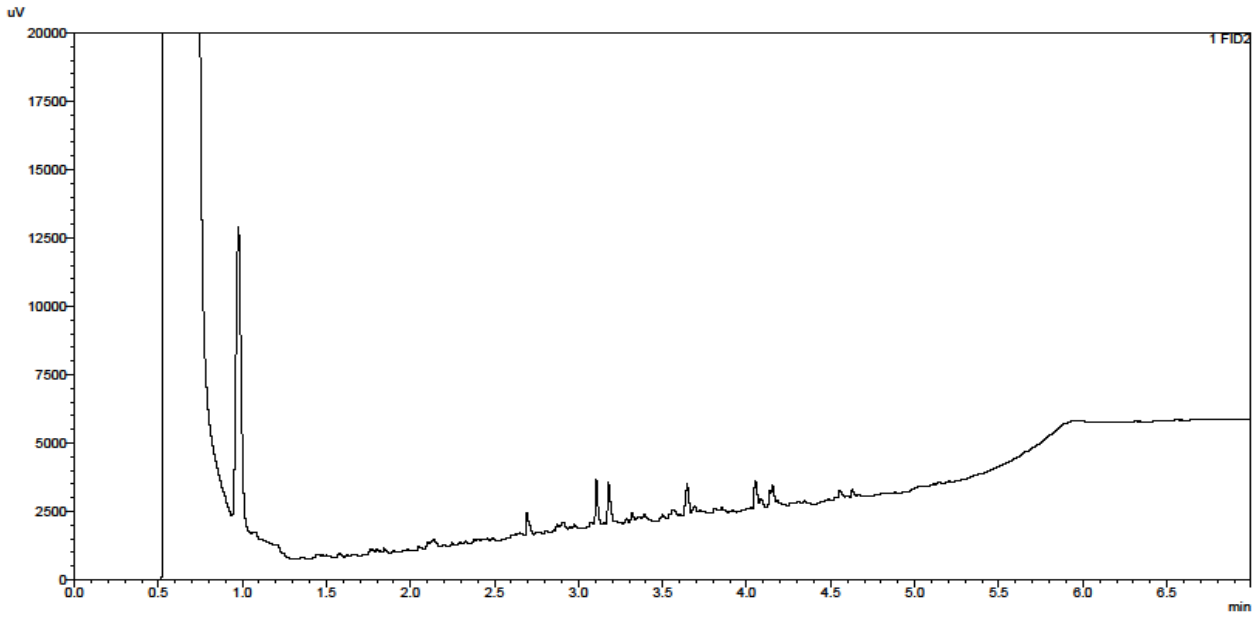


TPH Chromatogram on Soil Sample: 1032896

<Sample Information>

Sample Name : 1032896 20-18317
Data Filename : 23 July 2020_23072020_1032896 20-18317_042.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 96
Date Acquired : 23/07/2020 19:00:48
Date Processed : 23/07/2020

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	20-18506-2		
Initial Date of Issue:	28-Jul-2020	**Date of Re-Issue:**	04-Aug-2020
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Contaminated Land Paul Quimby Chris Hughes		
Project	LKC 20 1120 Rochdale Road, Collyhurst		
Quotation No.:		**Date Received:**	17-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	18		
Turnaround (Wkdays):	10	**Results Due:**	04-Aug-2020
Date Approved:	04-Aug-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Bulk Identification Certificate

Client: LK Consult

Site Address:

Date Sampled: 15-Jul-2020

Date Received: 17-Jul-2020

Your Ref.:

Project: LKC 20 1120 Rochdale Road, Collyhurst

Job Number: 20-18506

No Samples:

Date Reported: 28-Jul-2020

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1033758	TP108/ACM			0.80		2185	U	DURHAM	Cement	Chrysotile

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult			**Chemtest Job No.:**		20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:			**Chemtest Sample ID.:**		1033720	1033721	1033722	1033725	1033728	1033731	1033734	1033735	1033737
			Client Sample ID.:		WS4/D1	WS4/D2	WS1/D1	WS2/D2	WS5/D1	WS3B/D1	WS13/D1	WS13/D2	WS3/D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.20	0.10	0.70	0.0	0.00	0.00	0.80	0.10
			Bottom Depth (m):		0.80	1.50	0.50	1.00	0..30	0.50	0.50	1.70	0.40
			Date Sampled:		15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
			Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-		-	-	-	-	-	-	Fibres/Clumps
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile
ACM Detection Stage	U	2192		N/A	-		-	-	-	-	-	-	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001									<0.001
Total Asbestos	N	2192	%	0.001									<0.001
Moisture	N	2030	%	0.020	11	11	14	19	6.7	13	12	13	9.7
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A				See Attached				See Attached	
pH	M	2010		4.0	9.6	8.8	8.7	8.1	11.5	7.8	8.6	7.6	8.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40				1.3				0.70	
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010							
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.28	0.013	0.088	0.11	0.75	0.039	0.017	0.027	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010							
Nitrate (Water Soluble)	N	2220	g/l	0.010		0.011							
Cyanide (Free)	M	2300	mg/kg	0.50				< 0.50				< 0.50	
Cyanide (Total)	M	2300	mg/kg	0.50				< 0.50				< 0.50	
Arsenic	M	2450	mg/kg	1.0	14		16	16	14	15	29	14	33
Cadmium	M	2450	mg/kg	0.10	0.35		0.36	0.17	2.3	1.1	< 0.10	0.18	< 0.10
Chromium	M	2450	mg/kg	1.0	24		24	23	24	18	24	29	24
Copper	M	2450	mg/kg	0.50	290		72	130	22	45	78	38	84
Mercury	M	2450	mg/kg	0.10	0.33		0.37	0.44	0.19	0.32	0.95	0.32	0.48
Nickel	M	2450	mg/kg	0.50	32		32	33	18	23	32	42	29
Lead	M	2450	mg/kg	0.50	88		120	1000	58	160	1400	80	520
Selenium	M	2450	mg/kg	0.20	< 0.20		0.26	0.46	< 0.20	0.43	0.45	0.51	0.34
Vanadium	U	2450	mg/kg	5.0	18		23	30	12	23	26	31	27
Zinc	M	2450	mg/kg	0.50	98		84	91	47	98	320	73	120
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	0.69	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.5		5.5	12	3.6	6.2	7.9	3.8	4.7
Fuel Type	N	2670		N/A				N/A				PAH	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult			**Chemtest Job No.:**		20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:			**Chemtest Sample ID.:**		1033720	1033721	1033722	1033725	1033728	1033731	1033734	1033735	1033737
			Client Sample ID.:		WS4/D1	WS4/D2	WS1/D1	WS2/D2	WS5/D1	WS3B/D1	WS13/D1	WS13/D2	WS3/D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.20	0.10	0.70	0.0	0.00	0.00	0.80	0.10
			Bottom Depth (m):		0.80	1.50	0.50	1.00	0..30	0.50	0.50	1.70	0.40
			Date Sampled:		15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
			Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				88	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0				88	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				40	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0				40	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				< 10				130	
Benzene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Toluene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Ethylbenzene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
o-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.59	2.7	< 0.10	< 0.10	< 0.10	0.46
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.47	0.11	< 0.10	< 0.10	< 0.10	0.24
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.65	4.7	< 0.10	< 0.10	< 0.10	2.5
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.73	3.2	< 0.10	< 0.10	< 0.10	1.4
Phenanthrene	M	2800	mg/kg	0.10	3.4		2.1	5.1	18	2.1	2.8	1.2	13
Anthracene	M	2800	mg/kg	0.10	1.0		0.50	1.2	4.5	0.51	0.50	0.29	3.1
Fluoranthene	M	2800	mg/kg	0.10	4.9		3.4	8.3	19	3.1	4.7	1.7	20
Pyrene	M	2800	mg/kg	0.10	4.1		2.9	8.5	16	2.5	4.1	2.4	18
Benzo[a]anthracene	M	2800	mg/kg	0.10	2.1		1.6	3.9	6.2	1.4	1.9	1.7	8.3
Chrysene	M	2800	mg/kg	0.10	1.9		1.3	4.1	7.4	1.4	2.3	1.6	8.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.7		1.8	6.2	8.2	1.9	2.9	2.9	10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.77		0.71	2.1	2.6	0.69	1.1	1.2	4.1
Benzo[a]pyrene	M	2800	mg/kg	0.10	2.0		1.8	4.8	6.5	1.5	2.2	3.3	9.0
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.2		0.95	3.0	4.0	0.95	1.4	2.0	5.1
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.54	0.72	< 0.10	< 0.10	< 0.10	1.2
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.1		1.4	3.1	3.8	1.1	1.7	2.3	5.0
Total Of 16 PAH's	N	2800	mg/kg	2.0	25		18	53	110	17	26	21	110
Total Phenols	M	2920	mg/kg	0.30				< 0.30				< 0.30	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:				**Chemtest Sample ID.:**	1033738	1033739	1033742	1033745	1033747	1033751	1033755	1033759
				Client Sample ID.:	WS3/D2	TP118/D1	TP119/D2	TP111/D1	TP113/D1	TP112/D2	TP108/D1	TP101/D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.8	0.20	0.40	0.10	0.00	0.30	0.00	0.00
				Bottom Depth (m):	1.2	1.00	0.80	1.10	0.30	1.00	0.30	1.00
				Date Sampled:	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
				Asbestos Lab:	DURHAM	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	DURHAM	DURHAM
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	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	N	2192	%	0.001								
Moisture	N	2030	%	0.020	16	11	11	13	12	9.0	15	10
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A			See Attached			See Attached		See Attached
pH	M	2010		4.0	8.0	8.5	8.0	8.2	8.2	10.9	8.4	8.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40			0.61			0.72		0.76
Magnesium (Water Soluble)	N	2120	g/l	0.010								
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.071	< 0.010	0.031	0.011	< 0.010	0.65	< 0.010	0.058
Chloride (Water Soluble)	M	2220	g/l	0.010								
Nitrate (Water Soluble)	N	2220	g/l	0.010								
Cyanide (Free)	M	2300	mg/kg	0.50			< 0.50			< 0.50		< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50			7.8			< 0.50		1.1
Arsenic	M	2450	mg/kg	1.0	12	23	31	37	20	11	16	62
Cadmium	M	2450	mg/kg	0.10	3.8	2.3	1.7	0.33	0.56	0.19	0.56	0.98
Chromium	M	2450	mg/kg	1.0	53	27	20	23	26	12	22	38
Copper	M	2450	mg/kg	0.50	130	210	480	76	63	22	58	260
Mercury	M	2450	mg/kg	0.10	1.3	0.83	0.72	0.27	1.0	< 0.10	0.51	2.1
Nickel	M	2450	mg/kg	0.50	28	31	47	52	26	13	22	51
Lead	M	2450	mg/kg	0.50	210	480	360	300	240	42	170	490
Selenium	M	2450	mg/kg	0.20	0.58	0.25	1.2	0.65	< 0.20	< 0.20	0.30	0.87
Vanadium	U	2450	mg/kg	5.0	20	29	24	32	24	13	19	86
Zinc	M	2450	mg/kg	0.50	350	160	120	75	130	41	110	190
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	8.6	5.9	48	8.3	4.8	1.5	4.7	14
Fuel Type	N	2670		N/A			PAH			N/A		PAH
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult		**Chemtest Job No.:**			20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:		**Chemtest Sample ID.:**			1033738	1033739	1033742	1033745	1033747	1033751	1033755	1033759
		Client Sample ID.:			WS3/D2	TP118/D1	TP119/D2	TP111/D1	TP113/D1	TP112/D2	TP108/D1	TP101/D1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.8	0.20	0.40	0.10	0.00	0.30	0.00	0.00
		Bottom Depth (m):			1.2	1.00	0.80	1.10	0.30	1.00	0.30	1.00
		Date Sampled:			15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
		Asbestos Lab:			DURHAM	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0			54			37		57
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			130			< 1.0		< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			180			37		57
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0			14			< 1.0		< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			210			< 1.0		6.5
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0			2000			180		45
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			61			< 1.0		< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			2300			180		52
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			2500			220		110
Benzene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Toluene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
o-Xylene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Naphthalene	M	2800	mg/kg	0.10	0.40	< 0.10	15	22	1.2	< 0.10	0.75	0.56
Acenaphthylene	N	2800	mg/kg	0.10	0.11	< 0.10	6.8	0.49	0.19	< 0.10	0.21	0.18
Acenaphthene	M	2800	mg/kg	0.10	1.6	< 0.10	33	18	1.1	< 0.10	2.5	0.72
Fluorene	M	2800	mg/kg	0.10	1.2	< 0.10	27	13	0.76	< 0.10	1.7	0.55
Phenanthrene	M	2800	mg/kg	0.10	8.4	0.88	210	78	6.6	2.0	13	5.7
Anthracene	M	2800	mg/kg	0.10	1.9	0.28	60	17	2.2	0.65	3.1	1.2
Fluoranthene	M	2800	mg/kg	0.10	16	1.1	250	54	13	2.8	19	5.8
Pyrene	M	2800	mg/kg	0.10	15	1.2	250	56	12	2.6	17	6.4
Benzo[a]anthracene	M	2800	mg/kg	0.10	8.4	< 0.10	160	24	5.7	1.2	8.0	3.1
Chrysene	M	2800	mg/kg	0.10	7.8	< 0.10	170	25	5.2	1.2	8.4	3.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	11	< 0.10	270	27	7.3	1.9	11	5.1
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	4.4	< 0.10	120	8.6	2.3	0.97	4.1	1.6
Benzo[a]pyrene	M	2800	mg/kg	0.10	10	< 0.10	370	23	6.4	1.8	9.0	5.4
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	6.5	< 0.10	270	11	3.5	1.1	5.1	4.1
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	1.4	< 0.10	56	2.9	0.78	< 0.10	0.93	0.73
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	6.1	< 0.10	310	11	3.6	1.3	5.6	4.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	100	3.4	2600	390	72	18	110	49
Total Phenols	M	2920	mg/kg	0.30			< 0.30			< 0.30		< 0.30

TPH Chromatogram on Soil Sample: 1033725

<Sample Information>

Sample Name : 1033725 20-18506
Data Filename : 23 July 2020_23072020_1033725 20-18506_073.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 37
Date Acquired : 23/07/2020 23:27:00
Date Processed : 23/07/2020

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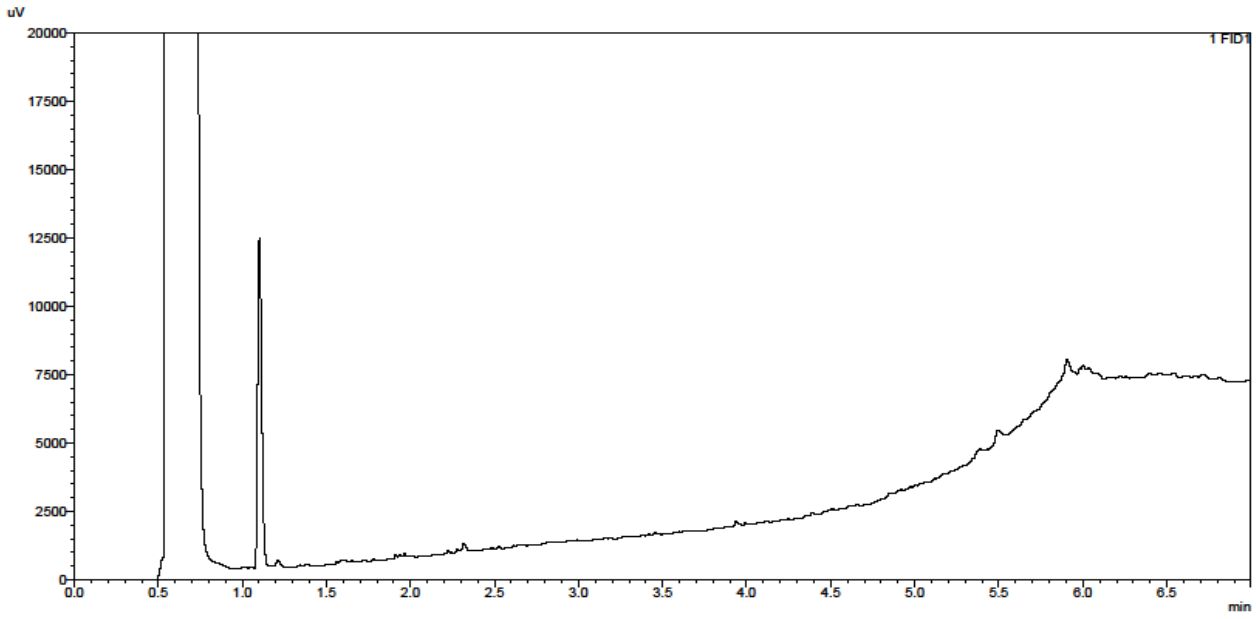

TPH Chromatogram on Soil Sample: 1033735

<Sample Information>

Sample Name : 1033735 20-18506
Data Filename : 30 July 2020_30072020_1033735 20-18506_022.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 22
Date Acquired : 30/07/2020 20:39:41
Date Processed : 30/07/2020

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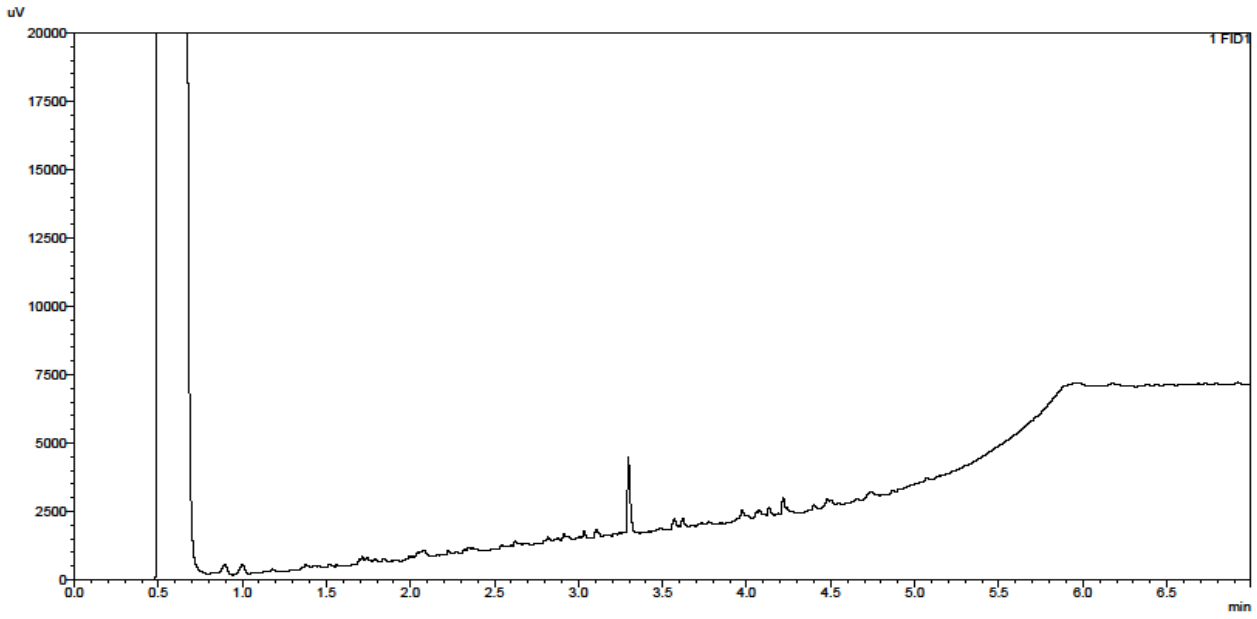
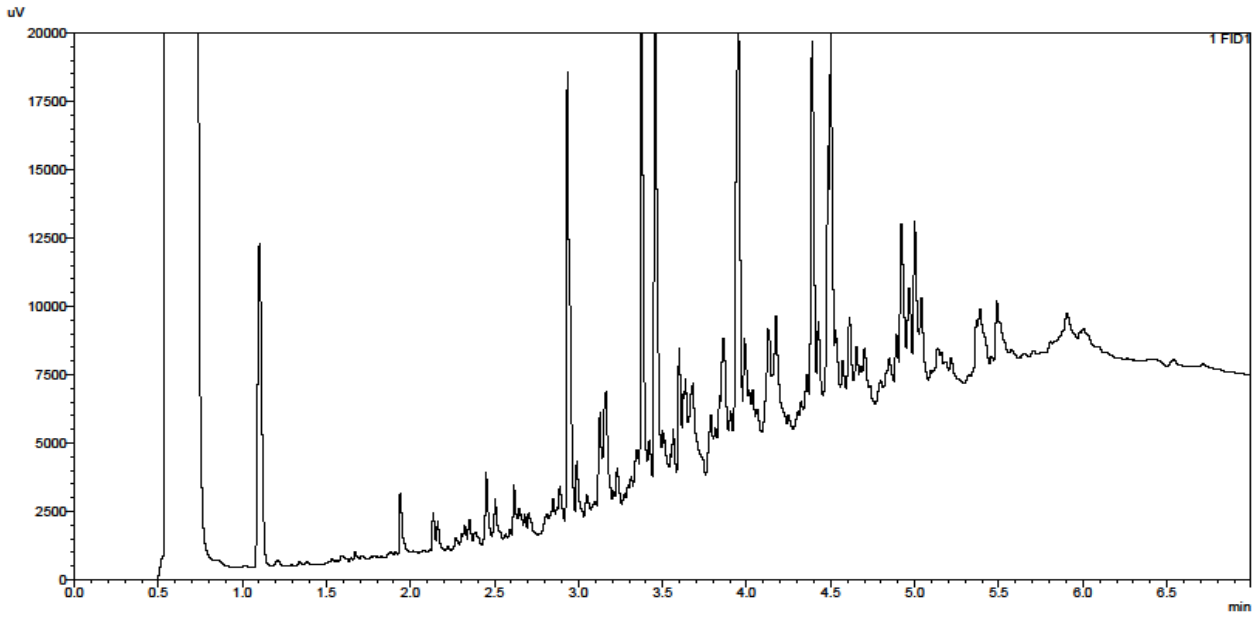


TPH Chromatogram on Soil Sample: 1033742

<Sample Information>

Sample Name : 1033742 20-18506
Data Filename : 23 July 2020_23072020_1033742 20-18506_075.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 38
Date Acquired : 23/07/2020 23:39:26
Date Processed : 23/07/2020

<Chromatogram>

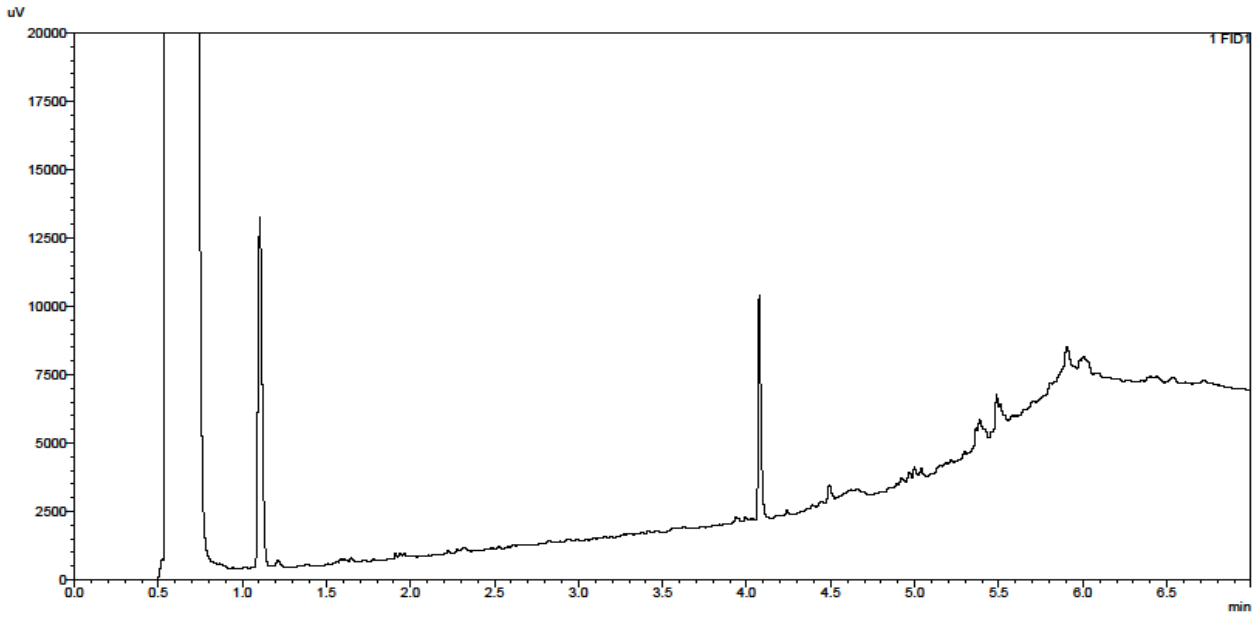


TPH Chromatogram on Soil Sample: 1033751

<Sample Information>

Sample Name : 1033751 20-18506
Data Filename : 23 July 2020_23072020_1033751 20-18506_077.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 39
Date Acquired : 23/07/2020 23:51:55
Date Processed : 23/07/2020

<Chromatogram>



TPH Chromatogram on Soil Sample: 1033759

<Sample Information>

Sample Name : 1033759 20-18506
Data Filename : 23 July 2020_23072020_1033759 20-18506_079.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 40
Date Acquired : 24/07/2020 00:04:20
Date Processed : 24/07/2020

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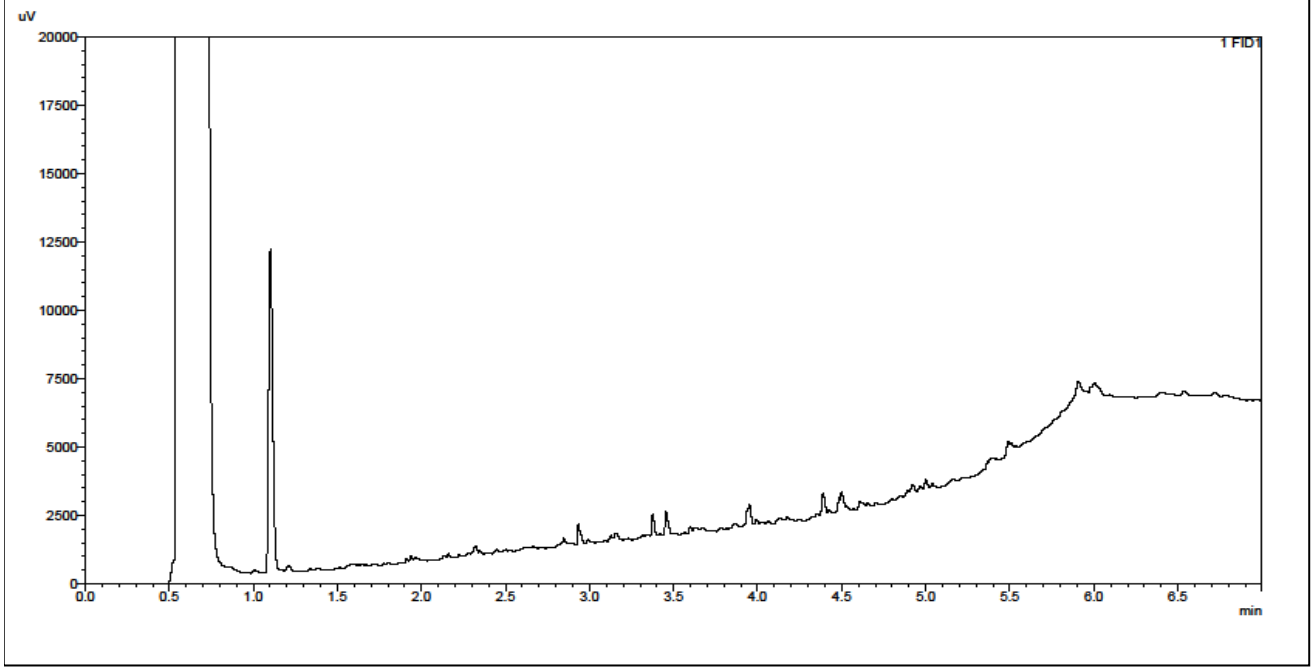


Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	20-18506-3		
Initial Date of Issue:	28-Jul-2020	**Date of Re-Issue:**	03-Sep-2020
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Contaminated Land Paul Quimby Chris Hughes		
Project	LKC 20 1120 Rochdale Road, Collyhurst		
Quotation No.:		**Date Received:**	17-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	18		
Turnaround (Wkdays):	31	**Results Due:**	03-Sep-2020
Date Approved:	03-Sep-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Bulk Identification Certificate

Client: LK Consult

Site Address:

Date Sampled: 15-Jul-2020

Date Received: 17-Jul-2020

Your Ref.:

Project: LKC 20 1120 Rochdale Road, Collyhurst

Job Number: 20-18506

No Samples:

Date Reported: 28-Jul-2020

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1033758	TP108/ACM			0.80		2185	U	DURHAM	Cement	Chrysotile

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Leachate

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**		20-18506
Quotation No.:				**Chemtest Sample ID.:**		1033742
				Client Sample ID.:		TP119/D2
				Sample Type:		SOIL
				Top Depth (m):		0.40
				Bottom Depth (m):		0.80
				Date Sampled:		15-Jul-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
C2 Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0
C2 Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
C2 Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	10	< 10
Total Organic Carbon	U	1610	2:1	mg/l	2.0	6.3
Benzene	U	1760	2:1	µg/l	1.0	< 1.0
Toluene	U	1760	2:1	µg/l	1.0	< 1.0
Ethylbenzene	U	1760	2:1	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
o-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	1.0	< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:				**Chemtest Sample ID.:**	1033720	1033721	1033722	1033725	1033728	1033731	1033734	1033735	1033737
				Client Sample ID.:	WS4/D1	WS4/D2	WS1/D1	WS2/D2	WS5/D1	WS3B/D1	WS13/D1	WS13/D2	WS3/D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.10	1.20	0.10	0.70	0.0	0.00	0.00	0.80	0.10
				Bottom Depth (m):	0.80	1.50	0.50	1.00	0..30	0.50	0.50	1.70	0.40
				Date Sampled:	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
				Asbestos Lab:	COVENTRY		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-		-	-	-	-	-	-	Fibres/Clumps
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile
ACM Detection Stage	U	2192		N/A	-		-	-	-	-	-	-	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001									<0.001
Total Asbestos	U	2192	%	0.001									<0.001
Moisture	N	2030	%	0.020	11	11	14	19	6.7	13	12	13	9.7
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A				See Attached				See Attached	
pH	M	2010		4.0	9.6	8.8	8.7	8.1	11.5	7.8	8.6	7.6	8.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40				1.3				0.70	
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010							
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.28	0.013	0.088	0.11	0.75	0.039	0.017	0.027	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010							
Nitrate (Water Soluble)	N	2220	g/l	0.010		0.011							
Cyanide (Free)	M	2300	mg/kg	0.50				< 0.50				< 0.50	
Cyanide (Total)	M	2300	mg/kg	0.50				< 0.50				< 0.50	
Arsenic	M	2450	mg/kg	1.0	14		16	16	14	15	29	14	33
Cadmium	M	2450	mg/kg	0.10	0.35		0.36	0.17	2.3	1.1	< 0.10	0.18	< 0.10
Chromium	M	2450	mg/kg	1.0	24		24	23	24	18	24	29	24
Copper	M	2450	mg/kg	0.50	290		72	130	22	45	78	38	84
Mercury	M	2450	mg/kg	0.10	0.33		0.37	0.44	0.19	0.32	0.95	0.32	0.48
Nickel	M	2450	mg/kg	0.50	32		32	33	18	23	32	42	29
Lead	M	2450	mg/kg	0.50	88		120	1000	58	160	1400	80	520
Selenium	M	2450	mg/kg	0.20	< 0.20		0.26	0.46	< 0.20	0.43	0.45	0.51	0.34
Vanadium	U	2450	mg/kg	5.0	18		23	30	12	23	26	31	27
Zinc	M	2450	mg/kg	0.50	98		84	91	47	98	320	73	120
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	0.69	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.5		5.5	12	3.6	6.2	7.9	3.8	4.7
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0				< 1.0				< 1.0	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult			**Chemtest Job No.:**		20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:			**Chemtest Sample ID.:**		1033720	1033721	1033722	1033725	1033728	1033731	1033734	1033735	1033737
			Client Sample ID.:		WS4/D1	WS4/D2	WS1/D1	WS2/D2	WS5/D1	WS3B/D1	WS13/D1	WS13/D2	WS3/D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.20	0.10	0.70	0.0	0.00	0.00	0.80	0.10
			Bottom Depth (m):		0.80	1.50	0.50	1.00	0..30	0.50	0.50	1.70	0.40
			Date Sampled:		15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
			Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				88	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0				88	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0				< 1.0				< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0				< 1.0				40	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0				< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0				40	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				< 10				130	
Benzene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Toluene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Ethylbenzene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
o-Xylene	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0				< 1.0				< 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.59	2.7	< 0.10	< 0.10	< 0.10	0.46
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.47	0.11	< 0.10	< 0.10	< 0.10	0.24
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.65	4.7	< 0.10	< 0.10	< 0.10	2.5
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.73	3.2	< 0.10	< 0.10	< 0.10	1.4
Phenanthrene	M	2800	mg/kg	0.10	3.4		2.1	5.1	18	2.1	2.8	1.2	13
Anthracene	M	2800	mg/kg	0.10	1.0		0.50	1.2	4.5	0.51	0.50	0.29	3.1
Fluoranthene	M	2800	mg/kg	0.10	4.9		3.4	8.3	19	3.1	4.7	1.7	20
Pyrene	M	2800	mg/kg	0.10	4.1		2.9	8.5	16	2.5	4.1	2.4	18
Benzo[a]anthracene	M	2800	mg/kg	0.10	2.1		1.6	3.9	6.2	1.4	1.9	1.7	8.3
Chrysene	M	2800	mg/kg	0.10	1.9		1.3	4.1	7.4	1.4	2.3	1.6	8.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.7		1.8	6.2	8.2	1.9	2.9	2.9	10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.77		0.71	2.1	2.6	0.69	1.1	1.2	4.1
Benzo[a]pyrene	M	2800	mg/kg	0.10	2.0		1.8	4.8	6.5	1.5	2.2	3.3	9.0
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.2		0.95	3.0	4.0	0.95	1.4	2.0	5.1
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.54	0.72	< 0.10	< 0.10	< 0.10	1.2
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.1		1.4	3.1	3.8	1.1	1.7	2.3	5.0
Total Of 16 PAH's	N	2800	mg/kg	2.0	25		18	53	110	17	26	21	110
Total Phenols	M	2920	mg/kg	0.30				< 0.30				< 0.30	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:				**Chemtest Sample ID.:**	1033738	1033739	1033742	1033745	1033747	1033751	1033755	1033759
				Client Sample ID.:	WS3/D2	TP118/D1	TP119/D2	TP111/D1	TP113/D1	TP112/D2	TP108/D1	TP101/D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.8	0.20	0.40	0.10	0.00	0.30	0.00	0.00
				Bottom Depth (m):	1.2	1.00	0.80	1.10	0.30	1.00	0.30	1.00
				Date Sampled:	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
				Asbestos Lab:	DURHAM	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	DURHAM	DURHAM
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	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	U	2192	%	0.001								
Moisture	N	2030	%	0.020	16	11	11	13	12	9.0	15	10
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A			See Attached			See Attached		See Attached
pH	M	2010		4.0	8.0	8.5	8.0	8.2	8.2	10.9	8.4	8.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40			0.61			0.72		0.76
Magnesium (Water Soluble)	N	2120	g/l	0.010								
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.071	< 0.010	0.031	0.011	< 0.010	0.65	< 0.010	0.058
Chloride (Water Soluble)	M	2220	g/l	0.010								
Nitrate (Water Soluble)	N	2220	g/l	0.010								
Cyanide (Free)	M	2300	mg/kg	0.50			< 0.50			< 0.50		< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50			7.8			< 0.50		1.1
Arsenic	M	2450	mg/kg	1.0	12	23	31	37	20	11	16	62
Cadmium	M	2450	mg/kg	0.10	3.8	2.3	1.7	0.33	0.56	0.19	0.56	0.98
Chromium	M	2450	mg/kg	1.0	53	27	20	23	26	12	22	38
Copper	M	2450	mg/kg	0.50	130	210	480	76	63	22	58	260
Mercury	M	2450	mg/kg	0.10	1.3	0.83	0.72	0.27	1.0	< 0.10	0.51	2.1
Nickel	M	2450	mg/kg	0.50	28	31	47	52	26	13	22	51
Lead	M	2450	mg/kg	0.50	210	480	360	300	240	42	170	490
Selenium	M	2450	mg/kg	0.20	0.58	0.25	1.2	0.65	< 0.20	< 0.20	0.30	0.87
Vanadium	U	2450	mg/kg	5.0	20	29	24	32	24	13	19	86
Zinc	M	2450	mg/kg	0.50	350	160	120	75	130	41	110	190
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	8.6	5.9	48	8.3	4.8	1.5	4.7	14
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

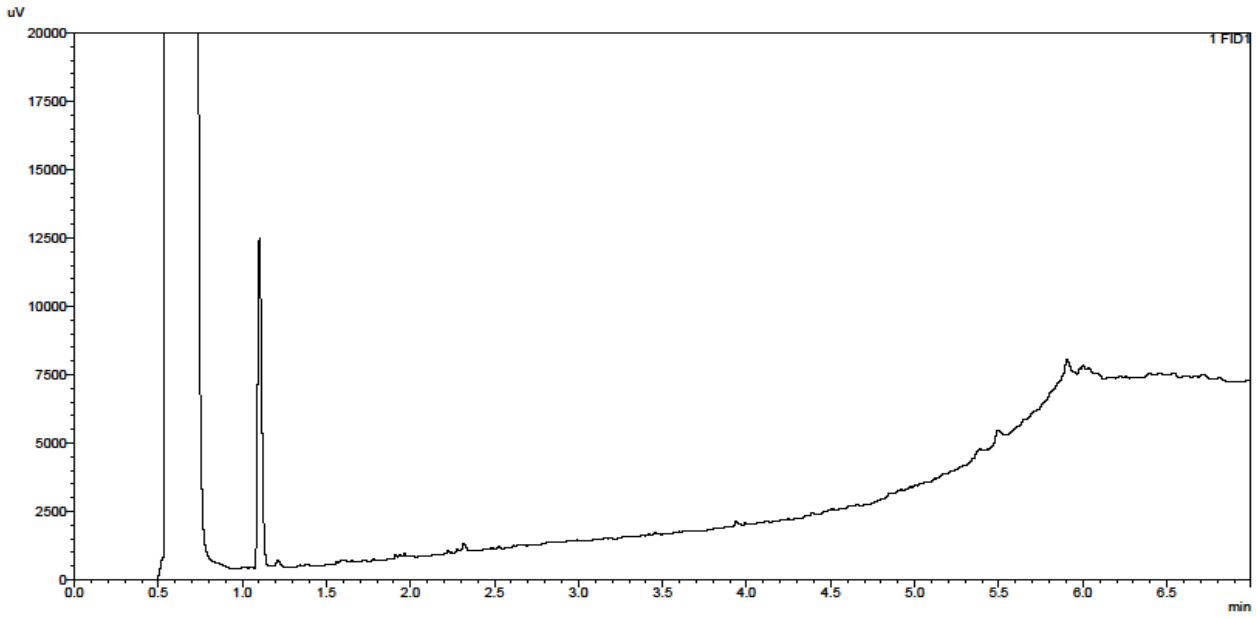
Client: LK Consult		**Chemtest Job No.:**			20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506	20-18506
Quotation No.:		**Chemtest Sample ID.:**			1033738	1033739	1033742	1033745	1033747	1033751	1033755	1033759
		Client Sample ID.:			WS3/D2	TP118/D1	TP119/D2	TP111/D1	TP113/D1	TP112/D2	TP108/D1	TP101/D1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.8	0.20	0.40	0.10	0.00	0.30	0.00	0.00
		Bottom Depth (m):			1.2	1.00	0.80	1.10	0.30	1.00	0.30	1.00
		Date Sampled:			15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020	15-Jul-2020
		Asbestos Lab:			DURHAM	COVENTRY	COVENTRY	COVENTRY	COVENTRY	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0			54			37		57
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			130			< 1.0		< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			180			37		57
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0			< 1.0			< 1.0		< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0			14			< 1.0		< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			210			< 1.0		6.5
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0			2000			180		45
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			61			< 1.0		< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			2300			180		52
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			2500			220		110
Benzene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Toluene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
o-Xylene	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			< 1.0			< 1.0		< 1.0
Naphthalene	M	2800	mg/kg	0.10	0.40	< 0.10	15	22	1.2	< 0.10	0.75	0.56
Acenaphthylene	N	2800	mg/kg	0.10	0.11	< 0.10	6.8	0.49	0.19	< 0.10	0.21	0.18
Acenaphthene	M	2800	mg/kg	0.10	1.6	< 0.10	33	18	1.1	< 0.10	2.5	0.72
Fluorene	M	2800	mg/kg	0.10	1.2	< 0.10	27	13	0.76	< 0.10	1.7	0.55
Phenanthrene	M	2800	mg/kg	0.10	8.4	0.88	210	78	6.6	2.0	13	5.7
Anthracene	M	2800	mg/kg	0.10	1.9	0.28	60	17	2.2	0.65	3.1	1.2
Fluoranthene	M	2800	mg/kg	0.10	16	1.1	250	54	13	2.8	19	5.8
Pyrene	M	2800	mg/kg	0.10	15	1.2	250	56	12	2.6	17	6.4
Benzo[a]anthracene	M	2800	mg/kg	0.10	8.4	< 0.10	160	24	5.7	1.2	8.0	3.1
Chrysene	M	2800	mg/kg	0.10	7.8	< 0.10	170	25	5.2	1.2	8.4	3.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	11	< 0.10	270	27	7.3	1.9	11	5.1
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	4.4	< 0.10	120	8.6	2.3	0.97	4.1	1.6
Benzo[a]pyrene	M	2800	mg/kg	0.10	10	< 0.10	370	23	6.4	1.8	9.0	5.4
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	6.5	< 0.10	270	11	3.5	1.1	5.1	4.1
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	1.4	< 0.10	56	2.9	0.78	< 0.10	0.93	0.73
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	6.1	< 0.10	310	11	3.6	1.3	5.6	4.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	100	3.4	2600	390	72	18	110	49
Total Phenols	M	2920	mg/kg	0.30			< 0.30			< 0.30		< 0.30

TPH Chromatogram on Soil Sample: 1033725

<Sample Information>

Sample Name : 1033725 20-18506
Data Filename : 23 July 2020_23072020_1033725 20-18506_073.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 37
Date Acquired : 23/07/2020 23:27:00
Date Processed : 23/07/2020

<Chromatogram>

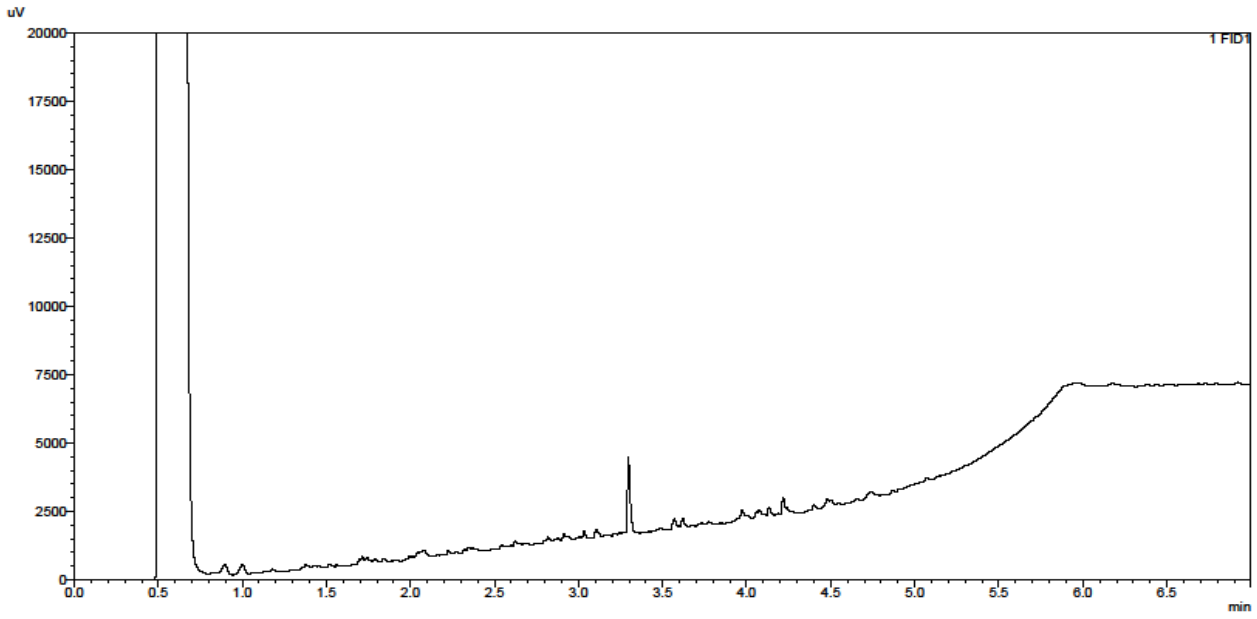


TPH Chromatogram on Soil Sample: 1033735

<Sample Information>

Sample Name : 1033735 20-18506
Data Filename : 30 July 2020_30072020_1033735 20-18506_022.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 22
Date Acquired : 30/07/2020 20:39:41
Date Processed : 30/07/2020

<Chromatogram>

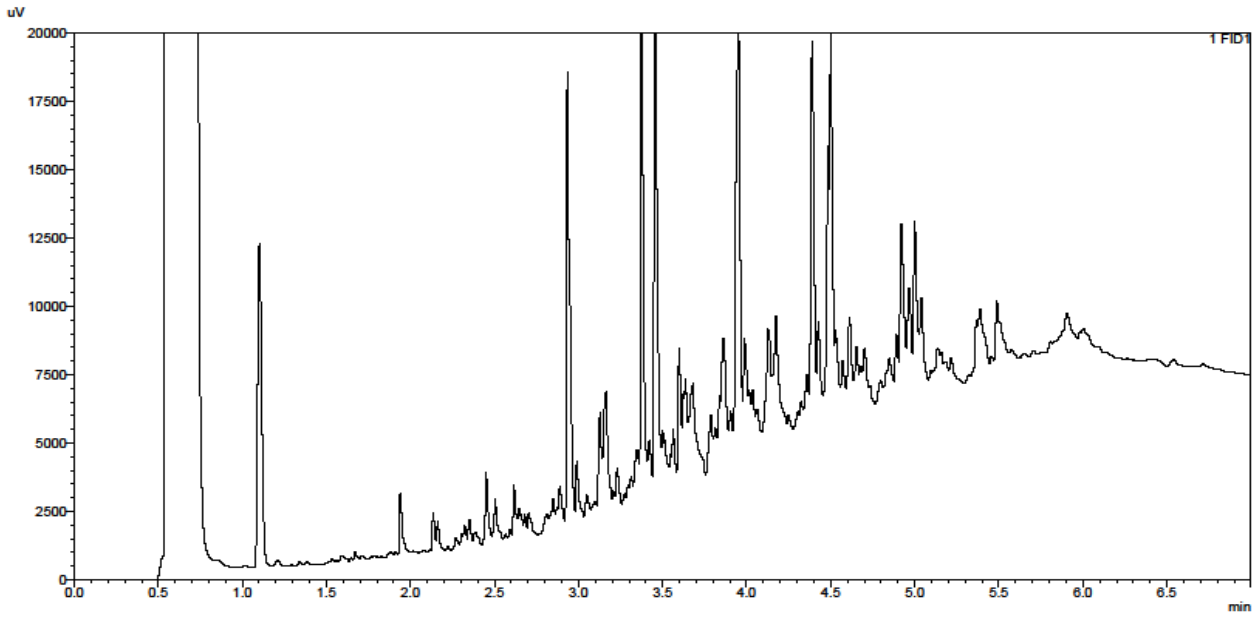


TPH Chromatogram on Soil Sample: 1033742

<Sample Information>

Sample Name : 1033742 20-18506
Data Filename : 23 July 2020_23072020_1033742 20-18506_075.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 38
Date Acquired : 23/07/2020 23:39:26
Date Processed : 23/07/2020

<Chromatogram>

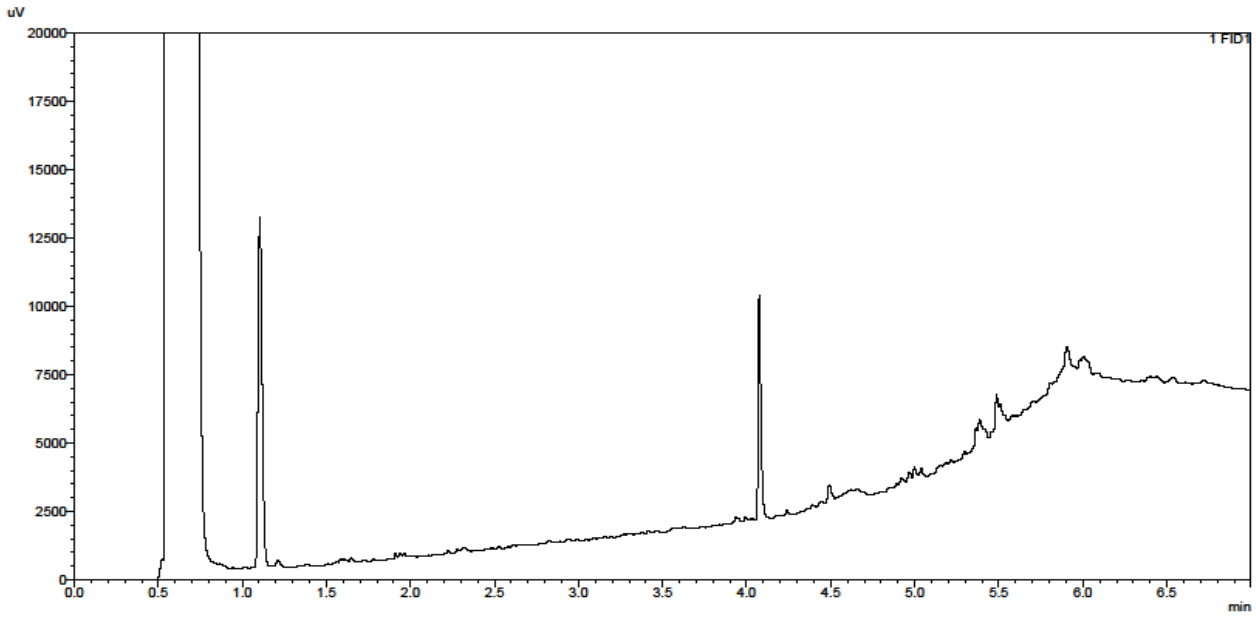


TPH Chromatogram on Soil Sample: 1033751

<Sample Information>

Sample Name : 1033751 20-18506
Data Filename : 23 July 2020_23072020_1033751 20-18506_077.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 39
Date Acquired : 23/07/2020 23:51:55
Date Processed : 23/07/2020

<Chromatogram>

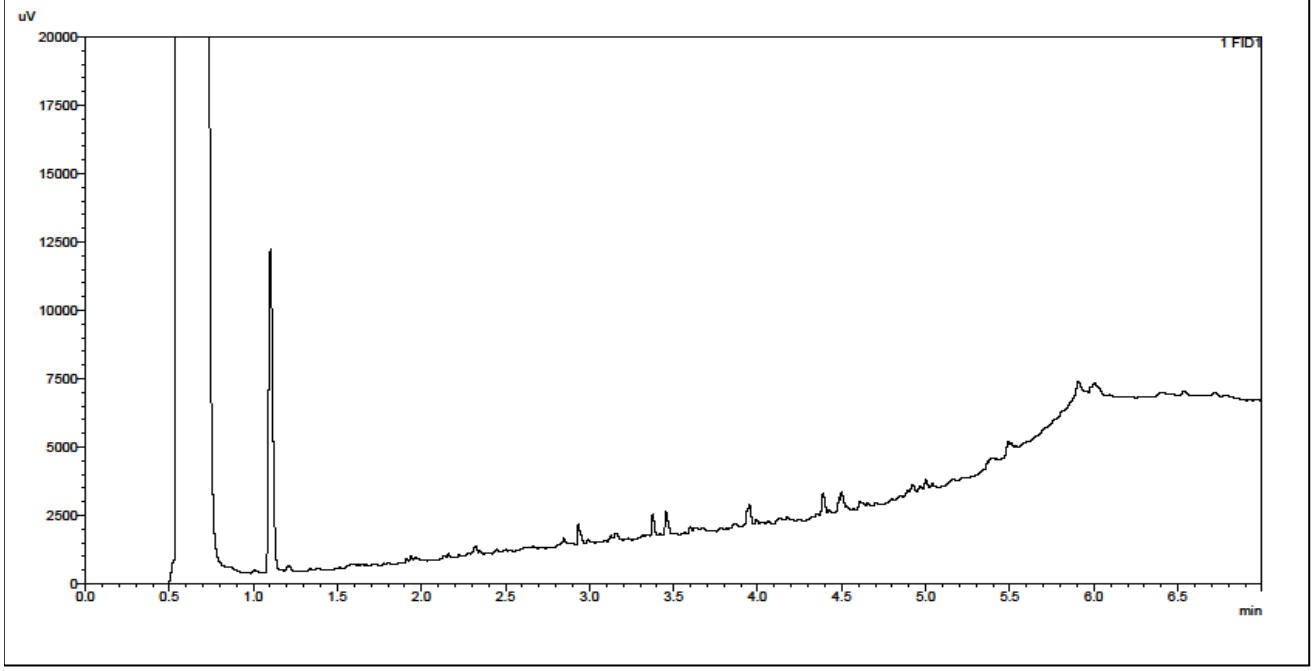


TPH Chromatogram on Soil Sample: 1033759

<Sample Information>

Sample Name : 1033759 20-18506
Data Filename : 23 July 2020_23072020_1033759 20-18506_079.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 40
Date Acquired : 24/07/2020 00:04:20
Date Processed : 24/07/2020

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-18506	1033725	S			WS2/D2	0.70		N/A
20-18506	1033735	S			WS13/D2	0.80		PAH
20-18506	1033742	2			TP119/D2	0.40	No	N/A
20-18506	1033742	S			TP119/D2	0.40	No	PAH
20-18506	1033751	S			TP112/D2	0.30		N/A
20-18506	1033759	S			TP101/D1	0.00		PAH

Test Methods

SOP	Title	Parameters included	Method summary
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
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
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by ‘Aquakem 600’ Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by ‘Aquakem 600’ Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Test Methods

SOP	Title	Parameters included	Method summary
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*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18928-1
Initial Date of Issue:	31-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Contaminated Land Chris Hughes
Project	LKC 20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	22-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	3		
Turnaround (Wkdays):	7	**Results Due:**	30-Jul-2020
Date Approved:	31-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035787								
Sample Ref:									
Sample ID:	TP119/TP113						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.40								
Bottom Depth(m):	2.00								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			9.0	3	5	6
Loss On Ignition	2610	M	%			12	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			43	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			41	100	--	--
pH	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.021	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0020	0.0028	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.029	0.023	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.0016	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0032	0.0022	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.019	0.0078	< 0.050	0.092	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0019	0.0011	< 0.010	0.012	0.06	0.7	5
Selenium	1450	U	0.0013	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0020	0.0012	< 0.50	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.5	0.80	3.0	8.9	10	150	500
Sulphate	1220	U	18	4.3	36	60	1000	20000	50000
Total Dissolved Solids	1020	N	200	85	390	990	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	31	18	61	200	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12

Leachate Test Information	
Leachant volume 1st extract/l	0.325
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.224

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035788								
Sample Ref:									
Sample ID:	TP110/TP108								
Sample Location:									
Top Depth(m):	0.10								
Bottom Depth(m):	1.10								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			5.2	3	5	6
Loss On Ignition	2610	M	%			8.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			340	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			94	100	--	--
pH	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.020	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0015	0.0019	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.040	0.030	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0051	0.0031	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.019	0.013	< 0.050	0.14	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0023	0.0015	< 0.010	0.016	0.06	0.7	5
Selenium	1450	U	0.0012	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0046	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	1.9	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.4	1.0	2.8	11	10	150	500
Sulphate	1220	U	23	8.2	45	100	1000	20000	50000
Total Dissolved Solids	1020	N	180	91	350	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	30	21	59	220	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	15

Leachate Test Information	
Leachant volume 1st extract/l	0.319
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.224

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035789								
Sample Ref:									
Sample ID:	TP101						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	1.00								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			5.3	3	5	6
Loss On Ignition	2610	M	%			6.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			32	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			53	100	--	--
pH	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.014	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0033	0.017	< 0.050	0.16	0.5	2	25
Barium	1450	U	0.039	0.0052	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0074	0.0057	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.0043	< 0.050	0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0022	0.0013	< 0.010	0.014	0.06	0.7	5
Selenium	1450	U	0.0017	0.0018	< 0.010	0.018	0.1	0.5	7
Zinc	1450	U	0.0023	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	4.2	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.89	0.39	1.8	4.4	10	150	500
Sulphate	1220	U	21	13	42	140	1000	20000	50000
Total Dissolved Solids	1020	N	160	78	320	870	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	30	18	60	190	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	10

Leachate Test Information	
Leachant volume 1st extract/l	0.330
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.194

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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
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<	"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

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customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18988-1
Initial Date of Issue:	31-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Paul Quimby Contaminated Land
Project	LKC20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	20-Jul-2020
Order No.:	737854	**Date Instructed:**	23-Jul-2020
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	31-Jul-2020
Date Approved:	31-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18988								
Chemtest Sample ID:	1034168								
Sample Ref:									
Sample ID:	TP104/D2						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.70								
Bottom Depth(m):	1.30								
Sampling Date:	16-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			3.6	3	5	6
Loss On Ignition	2610	M	%			8.9	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.057	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0083	0.0056	< 0.050	0.057	0.5	2	25
Barium	1450	U	0.022	0.0090	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.012	0.0042	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.018	0.0084	< 0.050	0.087	0.5	10	30
Nickel	1450	U	0.0019	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	0.0051	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0027	0.0016	< 0.010	0.016	0.06	0.7	5
Selenium	1450	U	0.0014	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.011	0.0017	< 0.50	< 0.50	4	50	200
Chloride	1220	U	3.5	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.68	0.49	1.3	4.9	10	150	500
Sulphate	1220	U	91	25	180	280	1000	20000	50000
Total Dissolved Solids	1020	N	370	210	720	2200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	49	24	96	250	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	21

Leachate Test Information	
Leachant volume 1st extract/l	0.305
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.069

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18988								
Chemtest Sample ID:	1034178								
Sample Ref:									
Sample ID:	TP105/D2						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	1.10								
Bottom Depth(m):	2.10								
Sampling Date:	16-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			5.6	3	5	6
Loss On Ignition	2610	M	%			8.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			68	100	--	--
pH	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.072	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0017	0.0011	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.032	0.058	< 0.50	0.56	20	100	300
Cadmium	1450	U	0.00011	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0017	0.0019	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.041	0.018	0.079	0.20	0.5	10	30
Nickel	1450	U	0.0013	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0029	0.0025	< 0.010	0.025	0.06	0.7	5
Selenium	1450	U	0.0023	0.0013	< 0.010	0.014	0.1	0.5	7
Zinc	1450	U	0.011	0.0035	< 0.50	< 0.50	4	50	200
Chloride	1220	U	2.4	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.81	0.51	1.6	5.3	10	150	500
Sulphate	1220	U	290	60	570	780	1000	20000	50000
Total Dissolved Solids	1020	N	500	250	970	2700	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	28	33	54	320	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	22

Leachate Test Information	
Leachant volume 1st extract/l	0.300
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.142

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18913-1		
Initial Date of Issue:	30-Jul-2020		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Catherine Baranek Contaminated Land		
Project	LKC20 1120 Rochdale, Collyhurst		
Quotation No.:		**Date Received:**	15-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	4		
Turnaround (Wkdays):	7	**Results Due:**	30-Jul-2020
Date Approved:	30-Jul-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18913								
Chemtest Sample ID:	1032025								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP128/D2								
Top Depth(m):	0.50								
Bottom Depth(m):	0.90								
Sampling Date:	13-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			14	3	5	6
Loss On Ignition	2610	M	%			10	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			320	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			47	100	--	--
pH	2010	M				8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.020	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0020	0.0019	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.030	0.040	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0033	0.0025	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.030	0.016	0.059	0.18	0.5	10	30
Nickel	1450	U	0.0020	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0024	0.0020	< 0.010	0.020	0.06	0.7	5
Selenium	1450	U	0.0018	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0054	0.0032	< 0.50	< 0.50	4	50	200
Chloride	1220	U	2.8	1.0	< 10	12	800	15000	25000
Fluoride	1220	U	1.6	0.98	3.1	11	10	150	500
Sulphate	1220	U	51	18	100	220	1000	20000	50000
Total Dissolved Solids	1020	N	210	150	420	1600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	30	26	59	260	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	18

Leachate Test Information	
Leachant volume 1st extract/l	0.311
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.223

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18913								
Chemtest Sample ID:	1032031								
Sample Ref:									
Sample ID:									
Sample Location:	TP131/D2								
Top Depth(m):	0.04								
Bottom Depth(m):	1.40								
Sampling Date:	13-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			5.3	3	5	6
Loss On Ignition	2610	M	%			6.9	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			43	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			34	100	--	--
pH	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.014	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0040	0.0033	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.022	0.013	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	0.00013	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0048	0.0029	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.054	0.021	0.11	0.25	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0052	0.0028	0.010	0.031	0.06	0.7	5
Selenium	1450	U	0.0022	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	1.0	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.7	1.3	3.4	13	10	150	500
Sulphate	1220	U	14	4.8	28	58	1000	20000	50000
Total Dissolved Solids	1020	N	250	98	490	1100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	28	19	56	200	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12

Leachate Test Information	
Leachant volume 1st extract/l	0.326
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.197

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18913								
Chemtest Sample ID:	1032035								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP124/D1								
Top Depth(m):	0.10								
Bottom Depth(m):	1.10								
Sampling Date:	13-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			2.8	3	5	6
Loss On Ignition	2610	M	%			5.0	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			36	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			190	100	--	--
pH	2010	M				8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.024	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0051	0.0064	< 0.050	0.062	0.5	2	25
Barium	1450	U	0.073	0.12	< 0.50	1.1	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.018	0.012	< 0.050	0.13	0.5	10	70
Copper	1450	U	0.0062	0.0045	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.013	0.0039	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	0.013	0.018	0.026	0.17	0.5	10	50
Antimony	1450	U	0.0036	0.0024	< 0.010	0.025	0.06	0.7	5
Selenium	1450	U	0.0011	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0022	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	2.8	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.9	0.93	3.7	10	10	150	500
Sulphate	1220	U	37	11	73	140	1000	20000	50000
Total Dissolved Solids	1020	N	180	98	350	1100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	28	67	55	620	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	15

Leachate Test Information	
Leachant volume 1st extract/l	0.319
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.197

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC20 1120 Rochdale, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18913								
Chemtest Sample ID:	1032040								
Sample Ref:									
Sample ID:									
Sample Location:	TP115/D2								
Top Depth(m):	0.20								
Bottom Depth(m):	1.20								
Sampling Date:	13-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			1.1	3	5	6
Loss On Ignition	2610	M	%			4.2	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			42	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.021	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.041	0.073	< 0.50	0.71	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0024	< 0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	0.0013	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0023	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0035	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	1.6	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.47	0.32	< 1.0	3.3	10	150	500
Sulphate	1220	U	36	12	71	140	1000	20000	50000
Total Dissolved Solids	1020	N	180	91	360	970	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	28	16	56	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12

Leachate Test Information	
Leachant volume 1st extract/l	0.326
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.119

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18928-1
Initial Date of Issue:	31-Jul-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Contaminated Land Chris Hughes
Project	LKC 20 1120 Rochdale Road, Collyhurst

Quotation No.:		**Date Received:**	22-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	3		
Turnaround (Wkdays):	7	**Results Due:**	30-Jul-2020
Date Approved:	31-Jul-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035787								
Sample Ref:									
Sample ID:	TP119/TP113						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.40								
Bottom Depth(m):	2.00								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			9.0	3	5	6
Loss On Ignition	2610	M	%			12	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			43	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			41	100	--	--
pH	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.021	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0020	0.0028	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.029	0.023	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	0.0016	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0032	0.0022	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.019	0.0078	< 0.050	0.092	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0019	0.0011	< 0.010	0.012	0.06	0.7	5
Selenium	1450	U	0.0013	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0020	0.0012	< 0.50	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.5	0.80	3.0	8.9	10	150	500
Sulphate	1220	U	18	4.3	36	60	1000	20000	50000
Total Dissolved Solids	1020	N	200	85	390	990	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	31	18	61	200	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12

Leachate Test Information	
Leachant volume 1st extract/l	0.325
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.224

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035788								
Sample Ref:									
Sample ID:	TP110/TP108								
Sample Location:									
Top Depth(m):	0.10								
Bottom Depth(m):	1.10								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			5.2	3	5	6
Loss On Ignition	2610	M	%			8.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			340	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			94	100	--	--
pH	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.020	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0015	0.0019	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.040	0.030	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0051	0.0031	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.019	0.013	< 0.050	0.14	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0023	0.0015	< 0.010	0.016	0.06	0.7	5
Selenium	1450	U	0.0012	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0046	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	1.9	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.4	1.0	2.8	11	10	150	500
Sulphate	1220	U	23	8.2	45	100	1000	20000	50000
Total Dissolved Solids	1020	N	180	91	350	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	30	21	59	220	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	15

Leachate Test Information	
Leachant volume 1st extract/l	0.319
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.224

Waste Acceptance Criteria

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

Results - 2 Stage WAC

Project: LKC 20 1120 Rochdale Road, Collyhurst

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18928								
Chemtest Sample ID:	1035789								
Sample Ref:									
Sample ID:	TP101						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	1.00								
Sampling Date:	15-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			5.3	3	5	6
Loss On Ignition	2610	M	%			6.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			32	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			53	100	--	--
pH	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.014	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0033	0.017	< 0.050	0.16	0.5	2	25
Barium	1450	U	0.039	0.0052	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0074	0.0057	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.0043	< 0.050	0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0022	0.0013	< 0.010	0.014	0.06	0.7	5
Selenium	1450	U	0.0017	0.0018	< 0.010	0.018	0.1	0.5	7
Zinc	1450	U	0.0023	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	4.2	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.89	0.39	1.8	4.4	10	150	500
Sulphate	1220	U	21	13	42	140	1000	20000	50000
Total Dissolved Solids	1020	N	160	78	320	870	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	30	18	60	190	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	10

Leachate Test Information	
Leachant volume 1st extract/l	0.330
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.194

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

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U	UKAS accredited
M	MCERTS and UKAS accredited
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>	"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.com

Appendix D

Certificates of Analysis - Groundwater

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-23983-1
Initial Date of Issue:	11-Sep-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Contaminated Land Chris Hughes Paul Quimby
Project	LKC 20 1120 Collyhurst Village

Quotation No.:		**Date Received:**	08-Sep-2020
Order No.:	737980	**Date Instructed:**	08-Sep-2020
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	14-Sep-2020
Date Approved:	11-Sep-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: LKC 20 1120 Collyhurst Village

Client: LK Consult			**Chemtest Job No.:**		20-23983
Quotation No.:			**Chemtest Sample ID.:**		1060985
			Client Sample ID.:		WS1
			Sample Type:		WATER
			Date Sampled:		07-Sep-2020
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	7.3
Sulphate	U	1220	mg/l	1.0	200
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050
Calcium	U	1415	mg/l	5.0	93
Total Hardness as CaCO3	U	1270	mg/l	15	570
Arsenic (Dissolved)	U	1450	µg/l	1.0	3.5
Boron (Dissolved)	U	1450	µg/l	20	430
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	11
Copper (Dissolved)	U	1450	µg/l	1.0	2.1
Manganese (Dissolved)	U	1450	µg/l	1.0	730
Nickel (Dissolved)	U	1450	µg/l	1.0	2.8
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.6
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.9
Zinc (Dissolved)	U	1450	µg/l	1.0	9.3
Mercury Low Level	U	1460	µg/l	0.010	< 0.010
Chromium (Hexavalent)	U	1490	µg/l	20	< 20
Dissolved Organic Carbon	U	1610	mg/l	2.0	4.9
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10
Benzene	U	1760	µg/l	1.0	< 1.0
Toluene	U	1760	µg/l	1.0	< 1.0

Results - Water

Project: LKC 20 1120 Collyhurst Village

Client: LK Consult			**Chemtest Job No.:**		20-23983
Quotation No.:			**Chemtest Sample ID.:**		1060985
			Client Sample ID.:		WS1
			Sample Type:		WATER
			Date Sampled:		07-Sep-2020
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Ethylbenzene	U	1760	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0
Naphthalene	N	1800	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010
Acenaphthene	N	1800	µg/l	0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.10	< 0.10
Total Phenols	U	1920	mg/l	0.030	< 0.030

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-23983	1060985	W			WS1		No	N/A

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1460	Mercury low-level in Waters by AFS	Mercury	Atomic Fluorescence Spectrometry, with collimated UV source, wavelength 253.7 nm.
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage

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

customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-22645-1
Initial Date of Issue:	03-Sep-2020
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Chris Hughes Paul Quimby
Project	LKC 20 1120 Collyhurst Village

Quotation No.:		**Date Received:**	26-Aug-2020
Order No.:	737966	**Date Instructed:**	26-Aug-2020
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	02-Sep-2020
Date Approved:	03-Sep-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: LKC 20 1120 Collyhurst Village

Client: LK Consult		**Chemtest Job No.:**			20-22645	20-22645	20-22645	20-22645	20-22645
Quotation No.:		**Chemtest Sample ID.:**			1054423	1054424	1054425	1054426	1054427
		Client Sample ID.:			WS6 GW	WS8 GW	WS4 GW	WS5 GW	BH3 GW
		Sample Type:			WATER	WATER	WATER	WATER	WATER
		Date Sampled:			24-Aug-2020	24-Aug-2020	24-Aug-2020	24-Aug-2020	24-Aug-2020
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
pH	U	1010		N/A	7.5	7.3	7.3	7.4	7.6
Sulphate	U	1220	mg/l	1.0	230	210	370	380	60
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Calcium	U	1415	mg/l	5.0	550	680	490	230	780
Total Hardness as CaCO3	U	1270	mg/l	15	1800	2100	1700	740	2100
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	14	< 1.0	1.9	< 1.0
Boron (Dissolved)	U	1450	µg/l	20	71	260	27	240	35
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	0.081	0.14
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	9.8	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	2.2	< 1.0	< 1.0	2.3	1.3
Manganese (Dissolved)	U	1450	µg/l	1.0	380	630	790	160	590
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	19	< 1.0	1.4	6.5	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	9.1	7.2	9.3	10	2.3
Mercury Low Level	U	1460	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chromium (Hexavalent)	U	1490	µg/l	20	< 20	< 20	< 20	< 20	< 20
Dissolved Organic Carbon	U	1610	mg/l	2.0	4.1	2.7	2.0	4.5	3.8
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10	< 10	< 10
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: LKC 20 1120 Collyhurst Village

Client: LK Consult		**Chemtest Job No.:**			20-22645	20-22645	20-22645	20-22645	20-22645
Quotation No.:		**Chemtest Sample ID.:**			1054423	1054424	1054425	1054426	1054427
		Client Sample ID.:			WS6 GW	WS8 GW	WS4 GW	WS5 GW	BH3 GW
		Sample Type:			WATER	WATER	WATER	WATER	WATER
		Date Sampled:			24-Aug-2020	24-Aug-2020	24-Aug-2020	24-Aug-2020	24-Aug-2020
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-22645	1054423	W			WS6 GW		No	N/A
20-22645	1054424	W			WS8 GW		No	N/A
20-22645	1054425	W			WS4 GW		No	N/A
20-22645	1054426	W			WS5 GW		No	N/A
20-22645	1054427	W			BH3 GW		No	N/A

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1460	Mercury low-level in Waters by AFS	Mercury	Atomic Fluorescence Spectrometry, with collimated UV source, wavelength 253.7 nm.
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
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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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	20-18141-2		
Initial Date of Issue:	28-Jul-2020	**Date of Re-Issue:**	03-Sep-2020
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Chris Hughes Contaminated Land		
Project	LKC 20 1120 Rochdale Road, Collyhurst		
Quotation No.:		**Date Received:**	15-Jul-2020
Order No.:	737854	**Date Instructed:**	22-Jul-2020
No. of Samples:	9		
Turnaround (Wkdays):	31	**Results Due:**	03-Sep-2020
Date Approved:	03-Sep-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Leachate

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**		20-18141
Quotation No.:				**Chemtest Sample ID.:**		1031999
				Client Sample ID.:		WS14B D2
				Sample Type:		SOIL
				Top Depth (m):		1.6
				Bottom Depth (m):		2.0
				Date Sampled:		13-Jul-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
C2 Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	2300
C2 Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	1100
C2 Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	270
C2 Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	93
C2 Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	290
C2 Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	77
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	5.0	4100
C2 Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	900
C2 Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	730
C2 Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	940
C2 Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	550
C2 Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	940
C2 Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	94
C2 Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	5.0	4200
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	10	8200
Total Organic Carbon	U	1610	2:1	mg/l	2.0	24
Benzene	U	1760	2:1	µg/l	1.0	< 1.0
Toluene	U	1760	2:1	µg/l	1.0	< 1.0
Ethylbenzene	U	1760	2:1	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
o-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	1.0	< 1.0

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

Client: LK Consult				**Chemtest Job No.:**	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141
Quotation No.:				**Chemtest Sample ID.:**	1031984	1031985	1031986	1031991	1031995	1031998	1031999	1032000	1032001
				Client Sample ID.:	WS15 D1	WS15 D2	WS17 D1	WS18 D2	WS16 D2	WS14B D1	WS14B D2	WS14B D3	WS10 D1
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.0	0.8	0.6	0.4	1.5	0.4	1.6	4.0	0.0
				Bottom Depth (m):	0.7	1.0	1.0	1.0	1.5	1.0	2.0	4.5	0.3
				Date Sampled:	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020
				Asbestos Lab:	DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
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	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-		-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	3.9	9.6	18	14	26	3.8	18	26	19
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Black	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Loam	Sand
Chromatogram (TPH)	N			N/A					See Attached		See Attached		
pH	M	2010		4.0	8.4	8.3	8.1	8.1	7.4	10.7	8.4		7.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40					0.50		1.8		
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010							
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	0.35	0.018	0.039	0.50	< 0.010		< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010							
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010							
Cyanide (Free)	M	2300	mg/kg	0.50					< 0.50		< 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50					5.2		1.5		
Arsenic	M	2450	mg/kg	1.0	18		39	18	140	42	51		18
Cadmium	M	2450	mg/kg	0.10	1.2		0.54	0.29	0.68	0.63	0.77		1.5
Chromium	M	2450	mg/kg	1.0	4.4		16	22	33	33	24		290
Copper	M	2450	mg/kg	0.50	6.8		130	48	210	77	340		74
Mercury	M	2450	mg/kg	0.10	< 0.10		1.6	0.40	11	0.87	2.2		0.76
Nickel	M	2450	mg/kg	0.50	11		31	23	88	32	39		22
Lead	M	2450	mg/kg	0.50	29		430	300	600	470	500		250
Selenium	M	2450	mg/kg	0.20	< 0.20		0.60	0.36	1.4	< 0.20	0.75		0.58
Vanadium	U	2450	mg/kg	5.0	5.5		38	26	97	37	38		18
Zinc	M	2450	mg/kg	0.50	45		250	150	420	200	280		190
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	3.5		6.9	3.8	38	5.0	22	13	4.8
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0		1.4	< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0		29	4.7	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0		84	8.6	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0					< 1.0		100	15	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0		230	77	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0		120	37	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0		570	140	

Results - Soil

Project: LKC 20 1120 Rochdale Road, Collyhurst

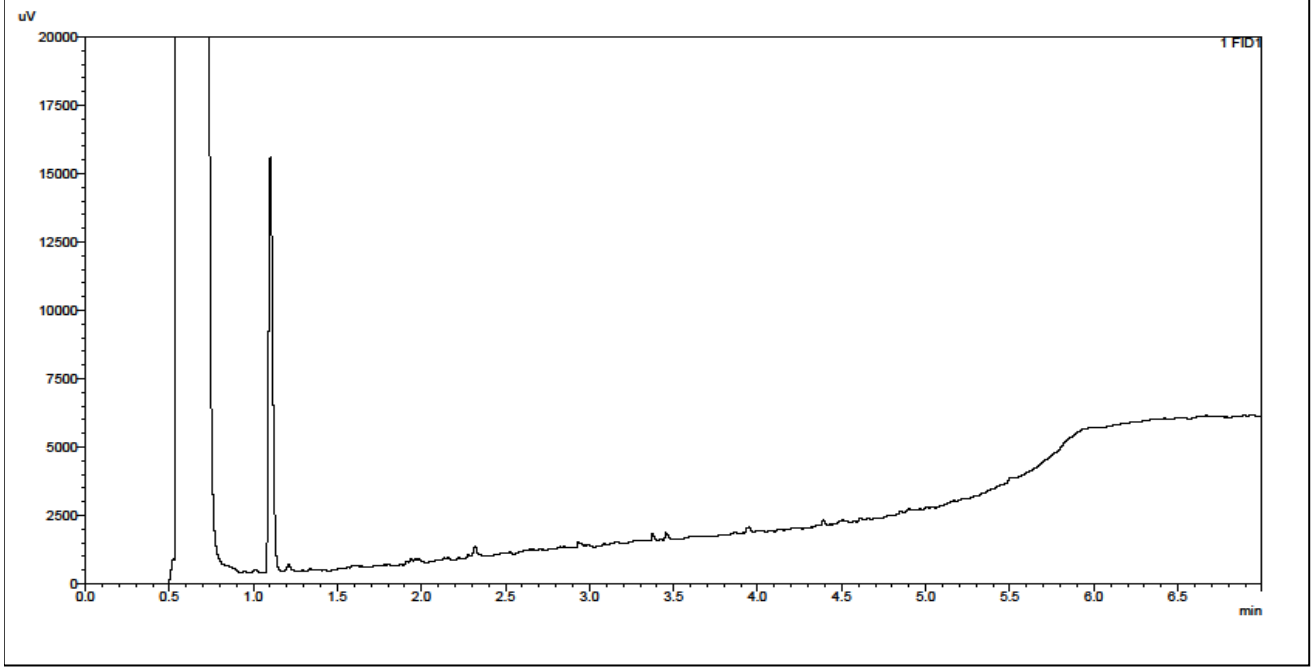
Client: LK Consult			**Chemtest Job No.:**		20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141	20-18141
Quotation No.:			**Chemtest Sample ID.:**		1031984	1031985	1031986	1031991	1031995	1031998	1031999	1032000	1032001
			Client Sample ID.:		WS15 D1	WS15 D2	WS17 D1	WS18 D2	WS16 D2	WS14B D1	WS14B D2	WS14B D3	WS10 D1
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	0.8	0.6	0.4	1.5	0.4	1.6	4.0	0.0
			Bottom Depth (m):		0.7	1.0	1.0	1.0	1.5	1.0	2.0	4.5	0.3
			Date Sampled:		13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020	13-Jul-2020
			Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0		< 1.0	< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0		23	< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0		88	14	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0		600	110	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0					< 1.0		2000	500	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0		6400	1800	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0		410	85	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0		9500	2500	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0					< 10		10000	2600	
Benzene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Toluene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Ethylbenzene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
o-Xylene	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0					< 1.0		< 1.0	< 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.69	< 0.10	0.27	13		0.76
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	0.29	< 0.10	0.12	6.0		0.12
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	1.5	< 0.10	0.25	110		2.8
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	1.4	< 0.10	0.16	66		1.9
Phenanthrene	M	2800	mg/kg	0.10	0.16		< 0.10	12	1.5	2.2	450		11
Anthracene	M	2800	mg/kg	0.10	0.12		< 0.10	3.5	0.34	0.50	120		2.9
Fluoranthene	M	2800	mg/kg	0.10	0.26		< 0.10	19	2.5	4.2	510		13
Pyrene	M	2800	mg/kg	0.10	0.25		< 0.10	17	2.7	4.0	430		11
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.18		< 0.10	8.5	1.6	2.2	190		5.7
Chrysene	M	2800	mg/kg	0.10	0.20		< 0.10	7.7	1.5	2.1	190		5.3
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.26		< 0.10	10	2.4	3.2	210		6.8
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	3.9	0.72	1.1	79		2.3
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.18		< 0.10	9.2	2.0	2.9	170		5.7
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.20		< 0.10	6.6	1.7	2.3	86		4.0
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.12		< 0.10	1.1	0.36	0.39	23		0.74
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.11		< 0.10	4.7	1.3	1.6	100		3.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	2.0		< 2.0	110	19	28	2800		77
Total Phenols	M	2920	mg/kg	0.30					< 0.30		< 0.30		

TPH Chromatogram on Soil Sample: 1031995

<Sample Information>

Sample Name : 1031995 20-18141
Data Filename : 24 July 2020_24072020_1031995 20-18141_075.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 38
Date Acquired : 24/07/2020 22:28:22
Date Processed : 24/07/2020

<Chromatogram>



TPH Chromatogram on Soil Sample: 1031999

<Sample Information>

Sample Name : 1031999 20-18141
Data Filename : 24 July 2020_24072020_1031999 20-18141_077.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 39
Date Acquired : 24/07/2020 22:40:54
Date Processed : 24/07/2020

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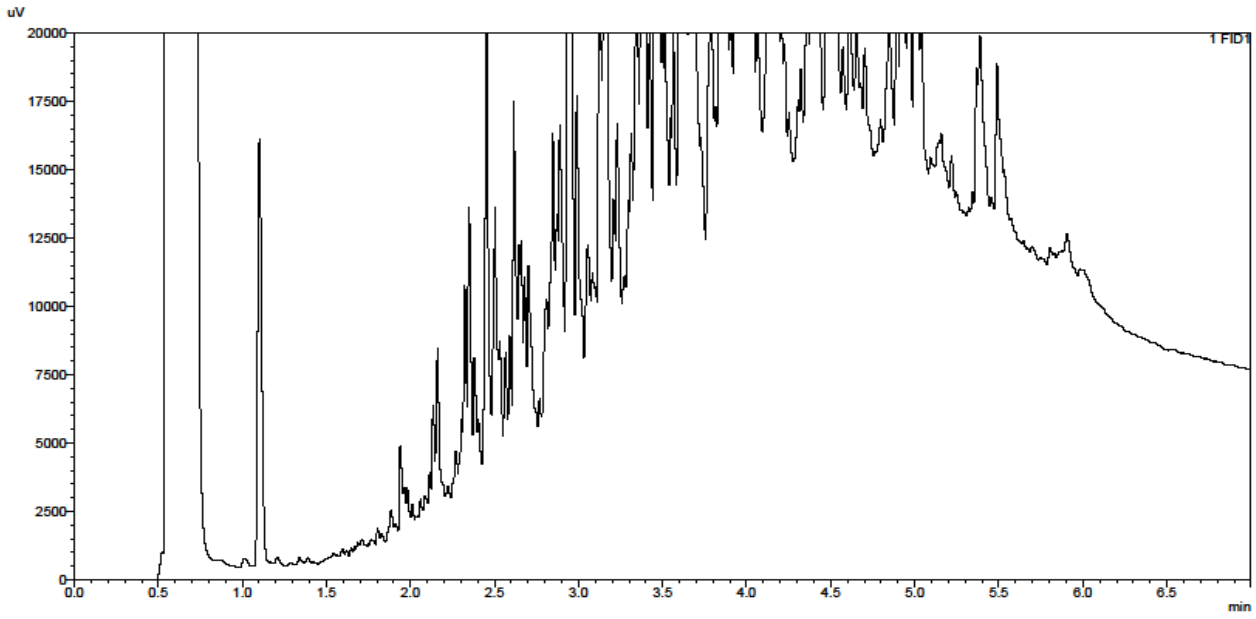


TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-18141	1031995	S			WS16 D2	1.5		N/A
20-18141	1031999	2			WS14B D2	1.6	No	Creosote
20-18141	1031999	S			WS14B D2	1.6	No	PAH
20-18141	1032000	S			WS14B D3	4.0		PAH

Test Methods

SOP	Title	Parameters included	Method summary
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Test Methods

SOP	Title	Parameters included	Method summary
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*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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.com

Appendix E

Gas Monitoring Results

LK CONSULT LTD

GAS MONITORING RECORD

SITE	Collyhurst Village, Manchester
REF	LKC 20 1120
DATE	10-Aug-2020
STAFF	EM/HM
VISIT	1 of 6

EQUIPMENT*1		
Instrument / Model Type	Serial Number	Comments
GFM 430	GAS0003	Serviced, calibrated & gas checked.
Geotech Dipmeter	81070	Operating Normally

ATMOSPHERIC / GROUND CONDITIONS	
Atmospheric Pressure Trend on Site	Variable
Atmospheric Pressure (Prev 24hrs)	Variable
Weather Conditions	Warm, dry, breezy
Ground Conditions	Dry

Borehole ID	Date/Time	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	Peak CH4 (% v/v)	Peak CO2 (%v/v)	% of Lower Explosive Limit*2	CO Pod (ppm)	H2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow *3 (ltr/hr)	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Notes
WS1	10/08/2020	0.1	1.8	14.5	0.1	14.5		0.0	0.0	98.1	1010	0.0	1.52	2.95	
WS2	10/08/2020	0.0	0.0	19.7	0.0	0.2		0.0	0.0	80.1	1010	0.0	1.80	3.91	
WS3B	10/08/2020	0.0	0.1	20.5	0.0	0.1		0.0	0.0	79.4	1009	0.0	3.47	3.50	
WS4	10/08/2020	0.0	0.0	19.8	0.0	1.8		0.0	0.0	80.2	1010	0.0	1.04	3.67	
WS5	10/08/2020	0.0	0.1	20.3	0.0	0.1		0.0	0.0	79.6	1010	0.0	0.84	4.47	
WS6	10/08/2020	0.0	1.4	19.8	0.0	1.4		0.0	0.0	78.8	1010	0.0	1.67	2.89	
WS8	10/08/2020	0.0	2.2	18.1	0.0	2.2		0.0	0.0	79.7	1011	0.0	3.73	4.94	
WS9	10/08/2020	0.0	1.6	20.0	0.0	1.6		0.0	0.0	78.4	1008	0.0	DRY	3.01	
WS10	10/08/2020	0.0	4.1	14.4	0.0	4.1		0.0	0.0	81.5	1008	0.0	DRY	4.92	
WS11D	10/08/2020	0.0	1.5	20.0	0.0	1.5		0.0	0.0	78.5	1007	0.0	DRY	2.88	
WS12	10/08/2020	0.0	0.9	20.6	0.0	0.9		0.0	0.0	78.5	1008	0.0	3.81	3.99	Peak CO = 10ppm
WS13	10/08/2020	0.0	0.0	20.7	0.0	0.0		0.0	0.0	79.3	1009	0.0	3.93	3.94	
WS14B	10/08/2020	0.0	2.7	14.7	0.0	3.3		0.0	0.0	82.6	1010	0.0	DRY	4.93	
WS15	10/08/2020	0.1	2.0	16.2	0.1	2.0		0.0	0.0	81.7	1009	0.0	1.79	1.88	
WS16	10/08/2020	0.1	13.0	6.0	0.1	13.0		0.0	0.0	80.9	1007	0.0	DRY	4.91	
WS17	10/08/2020	0.1	2.3	16.0	0.1	2.3		0.0	0.0	81.6	1009	0.0	2.86	2.95	
WS18	10/08/2020	0.0	0.0	21.1	0.0	0.0		0.0	0.0	78.9	1009	0.0	DRY	3.96	
BH1	10/08/2020	0.0	4.2	8.3	0.0	4.2		0.0	0.0	87.5	1008	0.0	DRY	10.01	
BH2	10/08/2020	0.0	0.7	19.9	0.0	0.7		0.0	0.0	79.4	1008	0.0	DRY	8.04	
BH3	10/08/2020	0	1.8	18.2	0.0	1.8		0.0	0.0	80.0	1007	0.0	3.85	5.4	
BH4	10/08/2020	0.1	1.8	18.3	0	1.8		0.0	0.0	79.8	1009	0.0	9.57	9.69	

ABBREVIATIONS

*1	Refer to Note 1
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
% v/v	Percentage volume by total volume
ppm	Parts per million
mb	Millibars
ltr/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air
OEL	Occupational exposure limit

NOTES

1. Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records. and service certificates.
2. CH4 is explosive between the range of 5 - 15% v/v. 100% lower explosive limit is equal to 5% v/v CH4.
3. Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr)
4. After CIRIA C665. GSV = gas concentration (%) x flow rate. Peak CH4 and Steady CO2 values used.
5. Monitoring is carried out in line with procedures set by LKC Ltd with reference to CIRIA C665. Refer to procedural documents

LK CONSULT LTD

GAS MONITORING RECORD

SITE	Collyhurst Village
REF	LKC 20 1120
DATE	15th October 2020
STAFF	EM & NJ
VISIT	6 of 6

EQUIPMENT*[1]		
Instrument / Model Type	Serial Number	Comments
Geotechnical Instruments GA5000	G502417	Serviced, calibrated & gas checked.
Geotech Dipmeter	Blue-01	Operating Normally

ATMOSPHERIC / GROUND CONDITIONS	
Atmospheric Pressure Trend on Site	Rising then steady
Atmospheric Pressure (Prev 24hrs)	Rising
Weather Conditions	Sunny, chilly, dry
Ground Conditions	Damp

Borehole ID	Date/Time	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	Peak CH4 (% v/v)	Peak CO2 (%v/v)	% of Lower Explosive Limit*2	CO Pod (ppm)	H2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow *3 (ltr/hr)	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Notes
BH1	15/10/2020 10:15	0.0	5.2	10.3	0.0	5.2	0.0	0.0	0.0	84.5	1022	0.0	9.78	9.83	Peak CO=8ppm, steady <1ppm.
BH2	15/10/2020 11:45	0.0	2.3	18.2	0.0	2.3	0.0	0.0	0.0	79.5	1022	0.0	DRY	7.96	
BH3	15/10/2020 11:22	0.0	1.8	17.7	0.0	1.8	0.0	0.0	0.0	80.4	1022	0.0	3.75	5.35	
BH4	15/10/2020 10:51	0.0	3.2	16.7	0.0	3.2	0.0	0.0	0.0	80.1	1021	0.0	9.48	9.62	Material around bung appears to have collapsed in.
WS1	15/10/2020 09:00	0.0	3.3	15.9	0.0	4.2	0.0	0.0	0.0	80.8	1021	0.0	2.38	2.87	Flow steady after monitoring for 2 minutes.
WS2	15/10/2020 09:36	0.1	1.1	16.0	0.1	1.1	0.2	0.0	0.0	82.8	1021	-0.1	1.36	3.86	Flow steady after monitoring for 4 minutes. Gas readings steady after 5 minutes.
WS3B	15/10/2020 09:19	0.0	0.9	20.7	0.0	0.9	0.0	0.0	0.0	78.4	1021	0.0	DRY	3.43	
WS4	15/10/2020 08:50	0.0	0.0	4.0	0.1	0.5	0.0	0.0	0.0	95.9	1021	-0.1	0.83	3.62	Flow steady after monitoring for 5 minutes. Gas readings steady after 5 minutes.
WS5	15/10/2020 10:00	0.1	0.6	20.4	0.1	0.6	0.2	0.0	0.0	78.9	1020	0.1	0.76	4.42	Peak CO=1ppm, steady<1ppm.
WS6	15/10/2020 10:30	0.0	0.2	21.6	0.0	1.5	0.0	0.0	0.0	78.1	1021	-0.1	0.59	2.82	Flow steady after 90 seconds..
WS8	15/10/2020 10:30	0.0	3.4	14.5	0.0	3.4	0.0	0.0	0.0	82.1	1021	0.0	3.27	4.87	
WS9	15/10/2020 11:44	0.0	2.5	18.7	0.0	2.5	0.0	0.0	0.0	78.8	1022	0.0	DRY	2.94	
WS10	15/10/2020 11:58	0.0	9.7	4.8	0.0	9.7	0.0	0.0	0.0	85.5	1022	0.0	DRY	4.86	Gas readings steady after 350 seconds.
WS11D	15/10/2020 11:30	0.0	1.1	20.2	0.0	1.1	0.0	0.0	0.0	78.7	1022	0.0	1.18	2.81	
WS12	15/10/2020 11:38	0.0	1.8	19.8	0.0	1.8	0.0	0.0	0.0	78.1	1022	0.0	3.85	3.92	
WS13	15/10/2020 12:10	0.0	0.7	20.7	0.0	0.7	0.0	0.0	0.0	78.5	1021	0.0	DRY	3.89	
WS14B	15/10/2020 11:00	0.0	4.2	15.4	0.0	9.1	0.0	0.0	0.0	80.4	1022	0.0	DRY	4.84	
WS15	15/10/2020 11:15	0.0	1.0	18.8	0.0	1.8	0.0	0.0	0.0	80.2	1022	0.0	1.62	1.88	
WS16	15/10/2020 11:07	0.0	10.8	6.6	0.0	10.8	0.0	0.0	0.0	82.6	1022	0.0	0.49	4.85	Peak CO=1ppm, steady<1ppm. Water flooded around bung.
WS17	15/10/2020 11:07	0.0	3.8	12.5	0.0	3.8	0.0	0.0	0.0	82.7	1023	0.0	2.87	2.88	
WS18	15/10/2020 11:07	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	DRY	3.88	Unable to record, tap left open.

ABBREVIATIONS

*[1]	Refer to Note 1
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
% v/v	Percentage volume by total volume
ppm	Parts per million
mb	Millibars
ltr/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air
OEL	Occupational exposure limit

NOTES

1. Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records. and service certificates.
2. CH4 is explosive between the range of 5 - 15% v/v. 100% lower explosive limit is equal to 5% v/v CH4.
3. Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr)
4. After CIRIA C665. GSV = gas concentration (%) x flow rate. Peak CH4 and Steady CO2 values used.
5. Monitoring is carried out in line with procedures set by LKC Ltd with reference to CIRIA C665. Refer to procedural documents

LK CONSULT LTD

GAS MONITORING RECORD

SITE	Collyhurst
REF	LKC 20 1120
DATE	24-Aug-2020
STAFF	HM & RW
VISIT	2 of 6

EQUIPMENT*[1]		
Instrument / Model Type	**Serial Number**	**Comments**
Geotechnical Instruments GA5000	G502417	Serviced, calibrated & gas checked.
Geotech Dipmeter	81070	Operating Normally

ATMOSPHERIC / GROUND CONDITIONS	
Atmospheric Pressure Trend on Site	Variable
Atmospheric Pressure (Prev 24hrs)	Rising
Weather Conditions	Clear, warm, still
Ground Conditions	Wet

Borehole ID	Date/Time	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	Peak CH4 (% v/v)	Peak CO2 (%v/v)	% of Lower Explosive Limit*2	CO Pod (ppm)	H2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow *3 (ltr/hr)	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Notes
WS4	24/08/2020 09:54	0.0	0.0	9.3	0.0	0.0	0.0	0.0	0.0	90.5	1007	0.3	0.80	3.67	Flow unsteady.
WS1	24/08/2020 10:02	0.0	3.3	14.3	0.0	3.3	0.0	0.0	0.0	82.3	1007	4.3	2.53	2.94	Peak CO= 1ppm
WS5	24/08/2020 10:13	0.0	0.5	19.4	0.0	0.5	0.0	1.0	0.0	80.1	1007	0.0	0.76	4.42	Peak CO= 2ppm
WS2	24/08/2020 10:21	0.0	0.0	20.8	0.0	0.2	0.0	2.0	0.0	79.1	1007	0.0	1.57	3.92	Peak CO= 2ppm
WS3B	24/08/2020 11:23	0.0	0.9	19.9	0.0	0.9	0.0	0.0	0.0	79.2	1007	0.0	3.44	3.54	
WS13	24/08/2020 11:32	0.0	0.8	20.8	0.0	0.8	0.0	1.0	0.0	78.8	1007	0.2	3.95	3.98	
BH1	24/08/2020 11:44	0.0	0.2	20.9	0.0	0.3	0.0	0.0	0.0	78.9	1007	0.0	Dry	9.91	
WS6	24/08/2020 11:55	0.0	1.1	19.8	0.0	1.1	0.0	2.0	0.0	79.1	1007	0.0	0.84	2.90	
WS8	24/08/2020 12:37	0.0	2.2	16.6	0.0	2.2	0.0	3.0	0.0	81.2	1008	0.0	3.80	4.95	
WS12	24/08/2020 13:15	0.0	1.4	20.2	0.1	1.4	0.0	0.0	0.0	78.4	1008	0.0	3.81	4.01	
WS11d	24/08/2020 13:23	0.0	1.3	20.2	0.1	1.3	0.0	0.0	0.0	78.4	1008	0.0	Dry	2.85	
BH3	24/08/2020 13:33	0.0	0.2	21.0	0.1	0.2	0.0	2.0	0.0	78.8	1008	0.0	3.88	5.39	
WS16	24/08/2020 13:56	0.0	7.5	14.0	0.0	7.5	0.0	1.0	0.0	78.5	1008	0.0	Dry	4.91	
WS14B	24/08/2020 14:07	0.0	6.1	12.4	0.0	6.3	0.0	2.0	0.0	81.5	1008	0.2	Dry	4.93	
WS10	24/08/2020 14:16	0.0	11.1	1.8	0.0	11.1	0.0	2.0	0.0	87.1	1008	-0.1	Dry	4.94	
BH2	24/08/2020 14:27	0.0	2.7	17.4	0.0	2.7	0.0	9.0	0.0	80.0	1008	0.0	Dry	8.23	
WS9	24/08/2020 14:35	0.0	2.5	17.5	0.1	2.5	0.0	2.0	0.0	80.0	1008	-0.2	Dry	2.99	
WS15	24/08/2020 14:51	0.0	0.4	20.4	0.0	1.1	0.0	2.0	0.0	79.2	1008	0.0	1.71	1.87	
BH4	24/08/2020 14:59	0.0	6.9	13.8	0.0	6.8	0.0	9.0	0.0	79.4	1008	-0.2	9.62	9.71	
WS17	24/08/2020 15:08	0.0	2.5	17.4	0.0	2.5	0.0	2.0	0.0	80.1	1008	-0.1	2.89	2.94	Ran for 200 seconds.
WS18	24/08/2020 15:18	0.0	0.1	21.2	0.0	0.1	0.0	3.0	0.0	78.7	1008	0.0	Dry	3.97	

ABBREVIATIONS

*[1]	Refer to Note 1
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
% v/v	Percentage volume by total volume
ppm	Parts per million
mb	Millibars
ltr/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air
OEL	Occupational exposure limit

LK CONSULT LTD

GAS MONITORING RECORD

SITE	Collyhurst
REF	LKC 20 1120
DATE	7-Sep-2020
STAFF	RW & EM
VISIT	3 of 6

EQUIPMENT*[1]		
Instrument / Model Type	**Serial Number**	**Comments**
Geotechnical Instruments GA5000	G502417	Serviced, calibrated & gas checked.
Geotech Dipmeter	81070	Operating Normally
Geotech Dipmeter	Blue-01	Operating Normally
Geotechnical Instruments GA2000+	GA10350	Serviced, calibrated & gas checked.

ATMOSPHERIC / GROUND CONDITIONS	
Atmospheric Pressure Trend on Site	Steady
Atmospheric Pressure (Prev 24hrs)	Rising
Weather Conditions	Cloudy, mild, breezy
Ground Conditions	Wet

Borehole ID	Date/Time	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	Peak CH4 (% v/v)	Peak CO2 (%v/v)	% of Lower Explosive	CO Pod (ppm)	H2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow *3 (ltr/hr)	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Notes
WS4	07/09/2020 09:53	0.1	0.0	6.2	0.1	0.0	0.0	0.0	0.0	93.8	1012	0.0	0.81	3.68	
BH1	07/09/2020 10:31	0.0	1.1	19.1	0.0	1.1	0.0	2.0	0.0	79.8	1012	0.0	9.79	9.82	CO steady = 1
BH2	07/09/2020 11:00	0.0	3.6	16.1	0.0	3.6	0.0	2.0	0.0	80.3	1012	0.0	Dry	7.96	
BH3	07/09/2020 11:40	0.0	2.0	17.9	0.0	2.0	0.0	1.0	0.0	80.1	1012	0.0	3.85	5.34	
BH4	07/09/2020 09:50	0.1	3.9	17.0	0.1	3.6	0.0	0.0	0.0	79.1	1012	0.0	9.61	9.78	
WS1	07/09/2020 11:00	0.1	3.8	12.7	0.1	3.8	0.0	5.0	0.0	83.5	1012	0.1	2.32	2.90	Flow still falling after 60 seconds. CO steady = 0
WS10	07/09/2020 11:28	0.1	5.4	13.4	0.1	6.1	0.0	0.0	0.0	81.2	1012	0.0	Dry	4.95	
WS11d	07/09/2020 11:28	0.0	1.8	19.7	0.0	1.8	0.0	1.0	0.0	78.5	1012	0.0	Dry	2.81	CO steady = 1
WS12	07/09/2020 10:19	0.1	1.7	19.3	0.1	1.7	0.0	0.0	0.0	79.0	1012	0.0	4.80	4.99	
WS13	07/09/2020 10:47	0.1	0.9	19.8	0.1	0.9	0.0	0.0	0.0	79.3	1012	0.0	3.95	3.95	
WS14B	07/09/2020 10:47	0.0	5.4	13.6	0.1	5.4	0.0	0.0	0.0	80.9	1012	0.0	Dry	4.85	
WS15	07/09/2020 12:06	0.0	0.5	20.6	0.1	0.9	0.0	2.0	0.0	78.9	1012	0.0	1.53	1.68	CO steady = 0
WS16	07/09/2020 11:51	0.1	9.0	10.4	0.1	9.0	0.0	1.0	0.0	80.6	1012	0.0	Dry	4.91	CO steady = 0
WS17	07/09/2020 12:06	0.1	2.9	16.0	0.1	2.9	0.0	0.0	0.0	81.1	1012	0.0	2.88	2.95	
WS18	07/09/2020 12:20	0.0	4.2	14.9	0.0	4.2	0.0	4.0	0.0	80.9	1012	0.0	Dry	3.98	No well cover. CO steady = 0
WS2	07/09/2020 10:19	0.0	0.1	20.8	0.0	0.4	0.0	1.0	0.0	29.1	1012	0.0	1.45	3.86	CO steady = 0
WS3B	07/09/2020 10:04	0.0	1.2	19.9	0.0	1.2	0.0	3.0	0.0	78.9	1012	0.0	3.43	3.43	CO steady = 0
WS5	07/09/2020 10:31	0.1	0.5	19.1	0.1	5.0	0.0	8.0	0.0	80.4	1012	0.0	0.76	4.47	CO steady = 0
WS6	07/09/2020 10:47	0.1	0.1	20.7	0.1	0.5	0.0	1.0	0.0	79.2	1012	0.0	1.69	2.88	CO steady = 0
WS8	07/09/2020 11:14	0.1	3.7	15.1	0.1	3.9	0.0	4.0	0.0	81.2	1012	0.0	3.54	4.95	Ran for 230 seconds, reading not steady. CO steady = 0
WS9	07/09/2020 11:14	0.1	3.2	17.0	0.1	3.2	0.0	1.0	0.0	79.8	1012	0.0	Dry	3.01	

ABBREVIATIONS

*[1]	Refer to Note 1
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
% v/v	Percentage volume by total volume
ppm	Parts per million
mb	Millibars
ltr/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air
OEL	Occupational exposure limit

NOTES

1. Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records. and service certificates.
2. CH4 is explosive between the range of 5 - 15% v/v. 100% lower explosive limit is equal to 5% v/v CH4.
3. Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr)
4. After CIRIA C665. GSV = gas concentration (%) x flow rate. Peak CH4 and Steady CO2 values used.
5. Monitoring is carried out in line with procedures set by LKC Ltd with reference to CIRIA C665. Refer to procedural documents

LK CONSULT LTD

GAS MONITORING RECORD

SITE	Collyhurst Village
REF	LKC 20 1120
DATE	28-Sep-2020
STAFF	RW & NJ
VISIT	4 of 6

EQUIPMENT*[1]		
Instrument / Model Type	Serial Number	Comments
Geotechnical Instruments GA5000	G502417	Serviced, calibrated & gas checked.
Geotech Dipmeter	Blue-01	Operating Normally

ATMOSPHERIC / GROUND CONDITIONS	
Atmospheric Pressure Trend on Site	Rising
Atmospheric Pressure (Prev 24hrs)	Falling
Weather Conditions	Cloudy, still, cold
Ground Conditions	28-Sep-20

Borehole ID	Date/Time	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	Peak CH4 (% v/v)	Peak CO2 (%v/v)	% of Lower Explosive Limit*2	CO Pod (ppm)	H2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow *3 (ltr/hr)	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Notes
BH1	28/09/2020	0.0	4.7	13.4	0.0	4.7	0.0	0.0	0.0	81.7	1006	0.0	9.78	9.82	
BH2	28/09/2020	0.0	1.1	20.2	0.0	1.5	0.0	0.0	0.0	78.7	1007	0.0	Dry	7.99	
BH3	28/09/2020	0.0	1.8	19.6	0.0	1.8	0.0	0.0	0.0	78.3	1007	0.1	4.88	5.34	
BH4	28/09/2020	0.0	4.0	17.2	0.0	4.3	0.0	0.0	0.0	78.7	1006	0.0	Dry	9.60	
WS1	28/09/2020	0.0	4.3	13.7	0.0	4.3	0.0	1.0	0.0	81.9	1006	0.0	2.65	2.88	
WS2	28/09/2020	0.1	0.2	20.9	0.1	0.5	0.0	2.0	0.0	78.9	1004	-0.1	1.79	3.25	
WS4	28/09/2020	0.1	0.0	4.6	0.1	0.1	0.0	0.0	0.0	95.3	1006	0.0	1.21	3.61	
WS5	28/09/2020	0.1	0.6	19.8	0.1	0.6	0.0	3.0	0.0	79.6	1005	0.0	0.90	4.41	
WS6	28/09/2020	0.0	2.2	18.8	0.0	2.2	0.0	2.0	0.0	78.9	1006	0.0	1.11	2.82	
WS8	28/09/2020	0.0	3.8	15.8	0.0	4.0	0.0	0.0	0.0	80.4	1007	0.2	3.63	4.82	
WS9	28/09/2020	0.0	2.6	18.6	0.0	2.6	0.0	0.0	0.0	78.8	1007	0.0	Dry	2.95	
WS10	28/09/2020	0.0	3.5	17.3	0.0	3.6	0.0	1.0	0.0	79.3	1007	0.0	Dry	4.85	
WS11d	28/09/2020	0.0	1.2	20.8	0.0	1.2	0.0	2.0	0.0	78.0	1007	0.0	Dry	2.79	
WS12	28/09/2020	0.0	1.4	20.5	0.0	1.4	0.0	0.0	0.0	78.1	1007	0.0	3.83	4.12	
WS13	28/09/2020	0.0	0.8	20.8	0.0	0.8	0.0	1.0	0.0	78.4	1006	0.0	Dry	3.88	
WS3B	28/09/2020	0.0	1.0	20.8	0.0	1.0	0.0	3.0	0.0	78.2	1006	0.0	Dry	3.41	
WS14b	28/09/2020	0.0	4.3	16.6	0.0	4.3	0.0	0.0	0.0	79.1	1007	0.0	Dry	3.90	
WS15	28/09/2020	0.0	0.5	20.6	0.0	1.7	0.0	0.0	0.0	78.9	1007	0.0	Dry	1.80	
WS16	28/09/2020	0.1	10.1	9.1	0.1	10.1	0.2	0.0	0.0	80.7	1007	0.0	Dry	4.83	
WS17	28/09/2020	0.0	3.6	14.4	0.0	3.6	0.0	0.0	0.0	82.0	1007	0.0	At base	2.88	
WS18	28/09/2020	0.0	4.8	15.2	0.0	3.8	0.0	4.0	0.0	80.0	1007	0.1	Dry	3.88	

ABBREVIATIONS

*[1]	Refer to Note 1
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
% v/v	Percentage volume by total volume
ppm	Parts per million
mb	Millibars
ltr/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air
OEL	Occupational exposure limit

NOTES

1. Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records. and service certificates.
2. CH4 is explosive between the range of 5 - 15% v/v. 100% lower explosive limit is equal to 5% v/v CH4.
3. Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr)
4. After CIRIA C665. GSV = gas concentration (%) x flow rate. Peak CH4 and Steady CO2 values used.
5. Monitoring is carried out in line with procedures set by LKC Ltd with reference to CIRIA C665. Refer to procedural documents

LK CONSULT

LK CONSULT LTD

GAS MONITORING RECORD

Site	Collyhurst Village
Job Number	LKC 20 1120
Date	07.10.2020
Engineer	NJ and EM
Visit	5 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Dipmeter	Blue-01	Operating normally.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Rising
Weather Conditions	ermittent showers, overcast and sun
Ground Conditions	Wet

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	% LEL[2]	CO Pod (ppm)	H_2S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow[3] (l/hr)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH1	07.10.2020 11.00am	0	5.3	6.9	0	5.3	0	0	0	87.8	1004	-0.7	Damp	9.83	Water flooded around tap, removed before monitoring.
BH2	07.10.2020 12.00pm	0	2.9	16.6	0	3	0	0	0	80.4	1005	0.1	Dry	7.98	
BH3	07.10.2020 12.33am	0	1.8	18.3	0	1.9	0	0	0	79.8	1005	0	3.82	5.34	
BH4	07.10.2020 12.50pm	0	7.2	12.5	0	7.2	0	0	0	80.3	1006	0	9.09	9.6	Material around bung appears to have collapsed in.
WS1	07.10.2020 10.12am	0	4.3	14.2	0	4.3	0	0	0	81.5	1003	0	2.56	2.89	
WS2	07.10.2020 10.02am	0	0.1	20.5	0.1	0.6	2	0	0	78.7	1003	-0.1	1.3	3.86	Peak CO=2ppm. Peak flow=-0.1l/hr.
WS3B	07.10.2020 10.45am	0	1	20.9	0	1	0	0	0	78.1	1003	0	Dry	3.43	
WS4	07.10.2020 10.22am	0.1	0	3.5	0.1	0.5	2	0	0	96.5	1003	0.1	0.78	3.61	
WS5	07.10.2020 9.52am	0	0	19.8	0.1	0.6	0	0	0	79.4	1002	-0.2	0.75	4.43	Peak CO=3ppm.
WS6	07.10.2020 10.53am	0	0.2	20.7	0	1.1	0	0	0	78.1	1004	0	0.54	2.82	
WS8	07.10.2020 11.10am	0	6.8	0.5	0	6.8	0	0	0	92.7	1004	0	3.38	4.87	
WS9	07.10.2020 12.09pm	0	2.6	16	0	3.2	0	0	0	79	1005	-0.1	Dry	2.95	
WS10	07.10.2020 11.48am	0	1.1	19.9	0	1.1	0	0	0	79	1004	0	Dry	4.86	
WS11	07.10.2020 12.24pm	0	1.4	20	0	1.4	0	0	0	78.6	1005	0	Dry	2.8	
WS12	07.10.2020 12.15pm	0	1.7	19.3	0	1.7	0	0	0	79	1005	0	3.86	3.93	
WS13	07.10.2020 10.35pm	0	0.8	20.6	0	0.8	0	0	0	78.1	1003	0	Dry	3.89	
WS14B	07.10.2020 11.41am	0	2.5	18.7	0.1	0	2	0	0	78.8	1004	0	Dry	4.85	
WS15	07.10.2020 12.59pm	0	1.4	18.2	0	1.4	0	0	0	79.1	1006	0	1.61	1.8	
WS16	07.10.2020 12.40pm	0	10.6	8	0	10.7	0	0	0	81.4	1005	0	Dry	4.84	
WS17	07.10.2020 1306pm	0	3.7	12.8	0	3.7	0	0	0	83.5	1006	-0.1	2.86	2.88	CO Peak=1ppm.
WS18	07.10.2020 13.15pm	0	5.2	13.8	0	5.2	0	0	0	81	1006	0.1	Dry	3.88	

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

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

Appendix F

Soakaway Testing Results

Tests Failed

LK GROUP

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

Soakaway Test (BRE Digest 365)

Site : Collyhurst Village, Manchester

Client : Far East Consortium International Limited

Project Contractor : LKC

Job Number LKC 20 1120

Sheet 1 / 4

Location	Date	Level	Location
SA101	22/07/2020	58.15 mOD	E: 385648 N: 400367

Pit Width (m)	0.60
Pit Depth (m)	2.70
Pit Length (m)	2.00

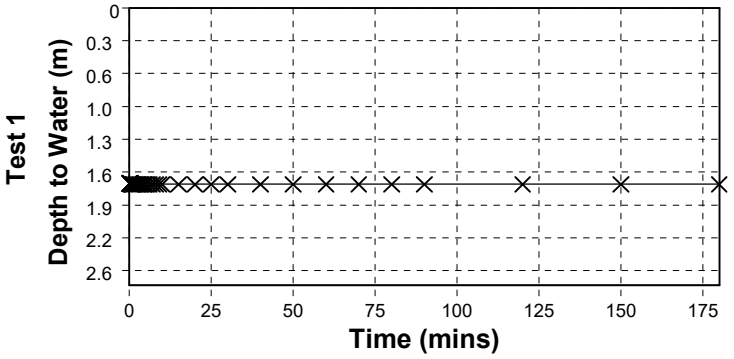
Soil type at test level	Clay
Groundwater	2.70 m
Drain discharge depth	2.70
Sidewall stability	Stable
Stone filled or open pit	Stone filled

	1
Effective depth (m)	0.99
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

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

Elapsed time (mins)	Depth to Water Test 1
0	1.71
0.083	1.71
0.167	1.71
0.333	1.71
0.5	1.72
0.667	1.72
0.833	1.72
1	1.72
1.5	1.72
2	1.72
2.5	1.72
3	1.72
3.5	1.72
4	1.72
4.5	1.72
5	1.72
6	1.72
7	1.72
8	1.72
9	1.72
10	1.72
15	1.72
20	1.72
25	1.72
30	1.72
40	1.72
50	1.72
60	1.72
70	1.72
80	1.72
90	1.72
120	1.72
150	1.72
180	1.72



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Tel: 0161 763 7200 web: www.thelkgroup.com

Soakaway Test (BRE Digest 365)

Site : Collyhurst Village, Manchester

Client : Far East Consortium International Limited

Project Contractor : LKC

Job Number LKC 20 1120

Sheet 2 / 4

Location	Date	Level	Location
SA103	23/07/2020	59.70 mOD	E: 385571 N: 400330

Pit Width (m)	0.60
Pit Depth (m)	2.10
Pit Length (m)	2.00

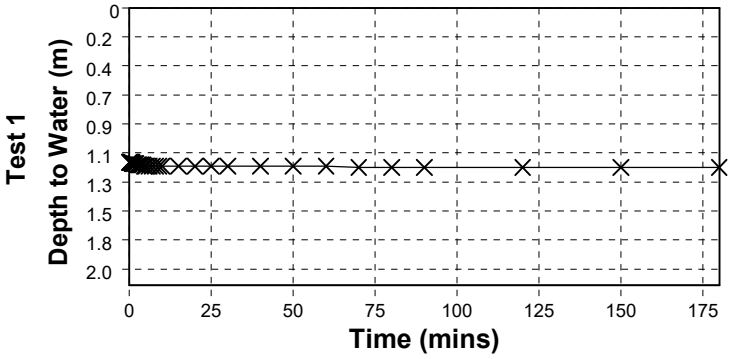
Soil type at test level	Clay
Groundwater	None
Drain discharge depth	
Sidewall stability	Stable
Stone filled or open pit	Stone filled

	1
Effective depth (m)	0.93
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

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

Elapsed time (mins)	Depth to Water Test 1
0	1.17
0.083	1.17
0.167	1.17
0.333	1.17
0.5	1.17
0.667	1.17
0.833	1.18
1	1.18
1.5	1.18
2	1.18
2.5	1.19
3	1.19
3.5	1.19
4	1.19
4.5	1.20
5	1.20
6	1.20
7	1.20
8	1.20
9	1.20
10	1.20
15	1.20
20	1.20
25	1.20
30	1.20
40	1.20
50	1.20
60	1.20
70	1.21
80	1.21
90	1.21
120	1.21
150	1.21
180	1.21



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Soakaway Test (BRE Digest 365)

Site : Collyhurst Village, Manchester

Client : Far East Consortium International Limited

Project Contractor : LKC

Job Number LKC 20 1120

Sheet 3 / 4

Location	Date	Level	Location
SA104	23/07/2020	58.68 mOD	E: 385538 N: 400283

Pit Width (m)	0.60
Pit Depth (m)	2.00
Pit Length (m)	2.00

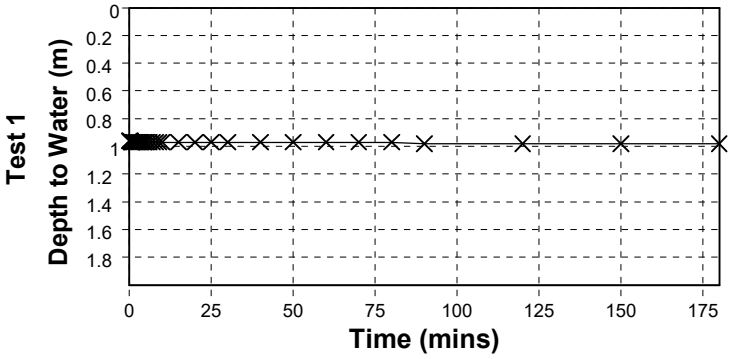
Soil type at test level	Clay
Groundwater	N/A
Drain discharge depth	2.0
Sidewall stability	Stable
Stone filled or open pit	Stone filled

	1
Effective depth (m)	1.04
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

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

Elapsed time (mins)	Depth to Water Test 1
0	0.96
0.083	0.96
0.167	0.96
0.333	0.96
0.5	0.97
0.667	0.97
0.833	0.97
1	0.97
1.5	0.97
2	0.97
2.5	0.97
3	0.97
3.5	0.97
4	0.97
4.5	0.97
5	0.97
6	0.97
7	0.97
8	0.97
9	0.97
10	0.97
15	0.97
20	0.97
25	0.97
30	0.97
40	0.97
50	0.97
60	0.97
70	0.97
80	0.97
90	0.98
120	0.98
150	0.98
180	0.98



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Soakaway Test (BRE Digest 365)

Site : Collyhurst Village, Manchester

Client : Far East Consortium International Limited

Project Contractor : LKC

Job Number LKC 20 1120

Sheet 4 / 4

Location	Date	Level	Location
SA106	23/07/2020	55.83 mOD	E: 385517 N: 400211

Pit Width (m)	0.60
Pit Depth (m)	2.00
Pit Length (m)	2.00

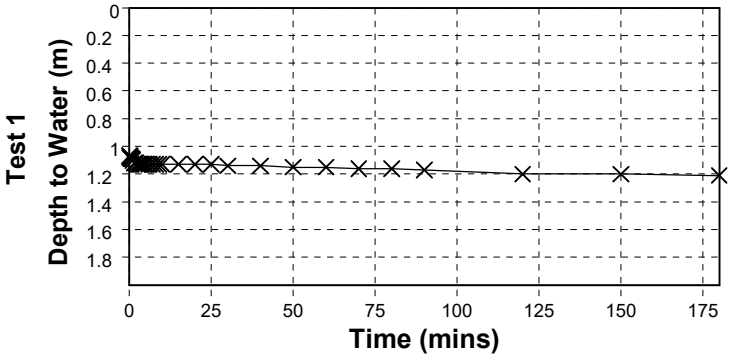
Soil type at test level	Clay
Groundwater	None
Drain discharge depth	2.0
Sidewall stability	Stable
Stone filled or open pit	Stone filled

	1
Effective depth (m)	0.93
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

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

Elapsed time (mins)	Depth to Water Test 1
0	1.07
0.083	1.07
0.167	1.08
0.333	1.08
0.5	1.09
0.667	1.09
0.833	1.09
1	1.10
1.5	1.12
2	1.12
2.5	1.13
3	1.13
3.5	1.13
4	1.13
4.5	1.13
5	1.13
6	1.13
7	1.13
8	1.13
9	1.13
10	1.13
15	1.13
20	1.13
25	1.13
30	1.14
40	1.14
50	1.15
60	1.15
70	1.16
80	1.16
90	1.17
120	1.20
150	1.20
180	1.21



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Appendix G

Generic Assessment Criteria Values

Category 4 Screening Levels (C4SL)

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	168 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 mg/kg	5.3 mg/kg	5.7 mg/kg	76 mg/kg	10 mg/kg	21 mg/kg
Cadmium	26 mg/kg	149 mg/kg	4.9 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	23 mg/kg	250 mg/kg
Lead	200 mg/kg	310 mg/kg	80 mg/kg	2330 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.

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

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
			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}
Petroleum Hydrocarbons	**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 +Aromatic >EC44	1%	1,600 f	1,900 f	1,200 f	28,000 f	3,800 f	7,800 f
		2.5%	1,800 f	1,900 f	2,100 f	28,000 f	3,800 f	7,800 f
		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.

	Contaminant	SOM	LQM Generic Assessment Criteria (mg/kg) Dry weight soil: 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-Trinitritoluene (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
	Endosulfanns (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.

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

Hazard Index Spreadsheets

$$HI = \sum_{Fi=1}^{16} HQ\ Fi = \frac{\text{Measured concentration Fi (mg/kg)}}{\text{S4UL Fi (mg/kg)}}$$

where: HI = Hazard Index
HQ = Hazard Quotient
Fi = Fraction I
S4UL = LQM Suitable 4 Use Levels (S4ULs)

Job Collyhurst Village, Manchester
Job No. LKC 20 1120
SOM 6%
Comment WS14B D3 4.0-4.5m

POS - Residential

	1% S4UL	2.50% SS4UL	6% S4UL	Max Soil concn.	HQ (1%SOM)	HQ (2.5%SOM)	HQ (6% SOM)
Aliphatic							
EC5-EC6	570000	590000	600000	1	1.754E-06	1.695E-06	1.667E-06
EC6-EC8	600000	610000	620000	1	1.667E-06	1.639E-06	1.613E-06
EC8-EC10	13000	13000	13000	1	7.692E-05	7.692E-05	7.692E-05
EC10-EC12	13000	13000	13000	4.7	0.0003615	0.0003615	0.0003615
EC12-EC16	13000	13000	13000	8.6	0.0006615	0.0006615	0.0006615
EC16-EC21	250000	250000	250000	15	0.00006	0.00006	0.00006
EC21-EC35				77			
EC35-EC44	250000	250000	250000	37	0.000148	0.000148	0.000148
Aromatic							
EC5-EC7 (benzene)	56000	56000	56000	0.001	1.786E-08	1.786E-08	1.786E-08
EC7-EC8 (tolulene)	56000	56000	56000	0.001	1.786E-08	1.786E-08	1.786E-08
EC8-EC10	5000	5000	5000	1	0.0002	0.0002	0.0002
EC10-EC12	5000	5000	5000	14	0.0028	0.0028	0.0028
EC12-EC16	5100	5100	5100	110	0.0215686	0.0215686	0.0215686
EC16-EC21	3800	3800	3800	500	0.1315789	0.1315789	0.1315789
EC21-EC35	3800	3800	3800	1800	0.4736842	0.4736842	0.4736842
EC35-EC44	3800	3800	3800	85	0.0223684	0.0223684	0.0223684
				HI	**0.65**	**0.65**	**0.65**

$$HI = \sum_{Fi=1}^{16} HQ\ Fi = \frac{\text{Measured concentration Fi (mg/kg)}}{\text{S4UL Fi (mg/kg)}}$$

where: HI = Hazard Index
HQ = Hazard Quotient
Fi = Fraction I
S4UL = LQM Suitable 4 Use Levels (S4ULs)

Job Collyhurst Village, Manchester
Job No. LKC 20 1120
SOM 1%
Comment

TP112 D2 0.3-1.0m

Residential With Plant Uptake

	1% S4UL	2.50% S4UL	6% S4UL	Max Soil concn.	HQ (1%SOM)	HQ (2.5%SOM)	HQ (6% SOM)
Aliphatic							
EC5-EC6	42	78	160	1	0.0238095	0.0128205	0.00625
EC6-EC8	100	230	530	1	0.01	0.0043478	0.0018868
EC8-EC10	27	65	150	1	0.037037	0.0153846	0.0066667
EC10-EC12	130	330	760	1	0.0076923	0.0030303	0.0013158
EC12-EC16	1100	2400	4300	1	0.0009091	0.0004167	0.0002326
EC16-EC21	65000	92000	110000	37	0.0005692	0.0004022	0.0003364
EC21-EC35							
EC35-EC44	65000	92000	110000	1	1.538E-05	1.087E-05	9.091E-06
Aromatic							
EC5-EC7 (benzene)	70	140	300	0.001	1.429E-05	7.143E-06	3.333E-06
EC7-EC8 (tolulene)	130	290	660	0.001	7.692E-06	3.448E-06	1.515E-06
EC8-EC10	34	83	190	1	0.0294118	0.0120482	0.0052632
EC10-EC12	74	180	380	1	0.0135135	0.0055556	0.0026316
EC12-EC16	140	330	660	1	0.0071429	0.0030303	0.0015152
EC16-EC21	260	540	930	1	0.0038462	0.0018519	0.0010753
EC21-EC35	1100	1500	1700	180	0.1636364	0.12	0.1058824
EC35-EC44	1100	1500	1700	1	0.0009091	0.0006667	0.0005882
				HI	**0.30**	**0.18**	**0.13**

$$HI = \sum_{Fi=1}^{16} HQ\ Fi = \frac{\text{Measured concentration Fi (mg/kg)}}{\text{S4UL Fi (mg/kg)}}$$

where: HI = Hazard Index
HQ = Hazard Quotient
Fi = Fraction I
S4UL = LQM Suitable 4 Use Levels (S4ULs)

Job Collyhurst Village, Manchester
Job No. LKC 20 1120
SOM 6%
Comment TP117 D2 0.2-1.2m

POS - Residential

	1% S4UL	2.50% SS4UL	6% S4UL	Max Soil concn.	HQ (1%SOM)	HQ (2.5%SOM)	HQ (6% SOM)
Aliphatic							
EC5-EC6	570000	590000	600000	1	1.754E-06	1.695E-06	1.667E-06
EC6-EC8	600000	610000	620000	1	1.667E-06	1.639E-06	1.613E-06
EC8-EC10	13000	13000	13000	1	7.692E-05	7.692E-05	7.692E-05
EC10-EC12	13000	13000	13000	1	7.692E-05	7.692E-05	7.692E-05
EC12-EC16	13000	13000	13000	1	7.692E-05	7.692E-05	7.692E-05
EC16-EC21	250000	250000	250000	1	0.000004	0.000004	0.000004
EC21-EC35				1			
EC35-EC44	250000	250000	250000	130	0.00052	0.00052	0.00052
Aromatic							
EC5-EC7 (benzene)	56000	56000	56000	0.001	1.786E-08	1.786E-08	1.786E-08
EC7-EC8 (tolulene)	56000	56000	56000	0.001	1.786E-08	1.786E-08	1.786E-08
EC8-EC10	5000	5000	5000	1	0.0002	0.0002	0.0002
EC10-EC12	5000	5000	5000	110	0.022	0.022	0.022
EC12-EC16	5100	5100	5100	240	0.0470588	0.0470588	0.0470588
EC16-EC21	3800	3800	3800	920	0.2421053	0.2421053	0.2421053
EC21-EC35	3800	3800	3800	2800	0.7368421	0.7368421	0.7368421
EC35-EC44	3800	3800	3800	65	0.0171053	0.0171053	0.0171053
				HI	**1.07**	**1.07**	**1.07**

$$HI = \sum_{Fi=1}^{16} HQ\ Fi = \frac{\text{Measured concentration Fi (mg/kg)}}{\text{S4UL Fi (mg/kg)}}$$

where: HI = Hazard Index
HQ = Hazard Quotient
Fi = Fraction I
S4UL = LQM Suitable 4 Use Levels (S4ULs)

Job Collyhurst Village, Manchester
Job No. LKC 20 1120
SOM 3%
Comment
WS13 D2 0.8-1.7m

Residential With Plant Uptake

	1% S4UL	2.50% S4UL	6% S4UL	Max Soil concn.	HQ (1%SOM)	HQ (2.5%SOM)	HQ (6% SOM)
Aliphatic							
EC5-EC6	42	78	160	1	0.0238095	0.0128205	0.00625
EC6-EC8	100	230	530	1	0.01	0.0043478	0.0018868
EC8-EC10	27	65	150	1	0.037037	0.0153846	0.0066667
EC10-EC12	130	330	760	1	0.0076923	0.0030303	0.0013158
EC12-EC16	1100	2400	4300	1	0.0009091	0.0004167	0.0002326
EC16-EC21	65000	92000	110000	88	0.0013538	0.0009565	0.0008
EC21-EC35							
EC35-EC44	65000	92000	110000	1	1.538E-05	1.087E-05	9.091E-06
Aromatic							
EC5-EC7 (benzene)	70	140	300	0.001	1.429E-05	7.143E-06	3.333E-06
EC7-EC8 (tolulene)	130	290	660	0.001	7.692E-06	3.448E-06	1.515E-06
EC8-EC10	34	83	190	1	0.0294118	0.0120482	0.0052632
EC10-EC12	74	180	380	1	0.0135135	0.0055556	0.0026316
EC12-EC16	140	330	660	1	0.0071429	0.0030303	0.0015152
EC16-EC21	260	540	930	1	0.0038462	0.0018519	0.0010753
EC21-EC35	1100	1500	1700	40	0.0363636	0.0266667	0.0235294
EC35-EC44	1100	1500	1700	1	0.0009091	0.0006667	0.0005882
				HI	**0.17**	**0.09**	**0.05**

Appendix I

HazWaste Output Sheets

Waste Classification Report

K2JDW-QN9G9-HL5YQ

Job name

LKC 20 1120

Description/Comments

Project

LKC 20 1120

Site

Collyhurst

Related Documents

#	Name	Description
1	HWOL_20-18141-20200728 170140.hwol	.hwol file used to create the Job
2	HWOL_20-18300-20200728 131927.hwol	.hwol file used to create the Job
3	HWOL_20-18317-20200728 131949.hwol	.hwol file used to create the Job
4	HWOL_20-18506-20200804 112752.hwol	.hwol file used to create the Job

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Colin Crompton
Date:
26 Aug 2020 10:02 GMT
Telephone:
0161 763 7200

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

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Colin Crompton
Created date: 26 Aug 2020 10:02 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS4/D1-1033720-15/07/2020-0.10	0.10-0.80	Non Hazardous		3
2	WS4/D2-1033721-15/07/2020-1.20	1.20-1.50	Non Hazardous		5
3	WS1/D1-1033722-15/07/2020-0.10	0.10-0.50	Non Hazardous		6
4	WS2/D2-1033725-15/07/2020-0.70	0.70-1.00	Non Hazardous		8
5	WS5/D1-1033728-15/07/2020-0.0	0.0-0..30	Hazardous	HP 8	11
6	WS3B/D1-1033731-15/07/2020-0.00	0.00-0.50	Non Hazardous		13
7	WS13/D1-1033734-15/07/2020-0.00	0.00-0.50	Non Hazardous		15

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
8	WS13/D2-1033735-15/07/2020-0.80	0.80-1.70	Non Hazardous		17
9	WS3/D1-1033737-15/07/2020-0.10	0.10-0.40	Non Hazardous		20
10	WS3/D2-1033738-15/07/2020-0.8	0.8-1.2	Non Hazardous		22
11	TP118/D1-1033739-15/07/2020-0.20	0.20-1.00	Non Hazardous		24
12	TP119/D2-1033742-15/07/2020-0.40	0.40-0.80	Hazardous	HP 7, HP 11	26
13	TP111/D1-1033745-15/07/2020-0.10	0.10-1.10	Non Hazardous		29
14	TP113/D1-1033747-15/07/2020-0.00	0.00-0.30	Non Hazardous		31
15	TP112/D2-1033751-15/07/2020-0.30	0.30-1.00	Non Hazardous		33
16	TP108/D1-1033755-15/07/2020-0.00	0.00-0.30	Non Hazardous		36
17	TP101/D1-1033759-15/07/2020-0.00	0.00-1.00	Non Hazardous		38
18	WS9/D1-14/07/2020-0.00	0.00-0.60	Non Hazardous		41
19	WS9/D2-14/07/2020-1.50	1.50-1.80	Non Hazardous		43
20	WS11D/D1-14/07/2020-0.00	0.00-0.40	Non Hazardous		44
21	WS12/D2-14/07/2020-0.30	0.30-1.00	Non Hazardous		46
22	WS6/D1-14/07/2020-0.00	0.00-0.30	Non Hazardous		49
23	WS6/D3-14/07/2020-0.80	0.80-1.00	Non Hazardous		51
24	WS7C/D1-14/07/2020-0.00	0.00-0.60	Non Hazardous		52
25	WS8/D2-14/07/2020-0.80	0.80-1.50	Non Hazardous		54
26	TP117/D2-14/07/2020-0.20	0.20-1.20	Hazardous	HP 7, HP 11	57
27	TP120/D1-14/07/2020-0.10	0.10-0.80	Non Hazardous		60
28	TP125/D2-14/07/2020-0.30	0.30-1.20	Non Hazardous		62
29	TP122/D2-14/07/2020-0.30	0.30-0.80	Non Hazardous		64
30	TP126/D1-14/07/2020-0.30	0.30-0.70	Non Hazardous		66
31	TP123/D2-14/07/2020-0.30	0.30-0.90	Non Hazardous		68
32	TP121/D1-14/07/2020-0.20	0.20-1.10	Non Hazardous		70
33	TP129/D1-14/07/2020-0.10	0.10-1.00	Non Hazardous		73
34	TP133/D1-14/07/2020-0.00	0.00-1.00	Non Hazardous		75
35	WS15 D1-1031984-13/07/2020-0.0	0.0-0.7	Non Hazardous		77
36	WS15 D2-1031985-13/07/2020-0.8	0.8-1.0	Non Hazardous		79
37	WS17 D1-1031986-13/07/2020-0.6	0.6-1.0	Non Hazardous		80
38	WS18 D2-1031991-13/07/2020-0.4	0.4-1.0	Non Hazardous		82
39	WS16 D2-1031995-13/07/2020-1.5	1.5-1.5	Non Hazardous		84
40	WS14B D1-1031998-13/07/2020-0.4	0.4-1.0	Non Hazardous		87
41	WS14B D2-1031999-13/07/2020-1.6	1.6-2.0	Hazardous	HP 7, HP 11	89
42	WS14B D3-1032000-13/07/2020-4.0	4.0-4.5	Hazardous	HP 7, HP 11	92
43	WS10 D1-1032001-13/07/2020-0.0	0.0-0.3	Non Hazardous		94

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	96
Appendix B: Rationale for selection of metal species	97
Appendix C: Version	98

Classification of sample: WS4/D1-1033720-15/07/2020-0.10

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

Sample details

Sample Name:
WS4/D1-1033720-15/07/2020-0.10
Sample Depth:
0.10-0.80 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	16.451	mg/kg	0.00165 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.35	mg/kg	1.142	0.356	mg/kg	0.0000356 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	31.219	mg/kg	0.00312 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		290	mg/kg	1.126	290.592	mg/kg	0.0291 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	88	mg/kg		78.32	mg/kg	0.00783 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.33	mg/kg	1.353	0.398	mg/kg	0.0000398 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32	mg/kg	2.976	84.764	mg/kg	0.00848 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		98	mg/kg	2.774	241.961	mg/kg	0.0242 %	✓	
11		pH			PH		9.6	pH		9.6	pH	9.6 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
16		phenanthrene				3.4	mg/kg		3.026	mg/kg	0.000303 %	✓	
			201-581-5	85-01-8									
17		anthracene				1	mg/kg		0.89	mg/kg	0.000089 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				4.9	mg/kg		4.361	mg/kg	0.000436 %	✓	
			205-912-4	206-44-0									
19		pyrene				4.1	mg/kg		3.649	mg/kg	0.000365 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				2.1	mg/kg		1.869	mg/kg	0.000187 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.9	mg/kg		1.691	mg/kg	0.000169 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				2.7	mg/kg		2.403	mg/kg	0.00024 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.77	mg/kg		0.685	mg/kg	0.0000685 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				2	mg/kg		1.78	mg/kg	0.000178 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				1.2	mg/kg		1.068	mg/kg	0.000107 %	✓	
			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				1.1	mg/kg		0.979	mg/kg	0.0000979 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	28.599	mg/kg	0.00286 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0797 %		

Key

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

Classification of sample: WS4/D2-1033721-15/07/2020-1.20

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

Sample details

Sample Name:
WS4/D2-1033721-15/07/2020-1.20
Sample Depth:
1.20-1.50 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		pH		PH		8.8 pH		8.8 pH	8.8 pH		
								Total:	0%		

Key

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

Classification of sample: WS1/D1-1033722-15/07/2020-0.10

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

Sample details

Sample Name:
WS1/D1-1033722-15/07/2020-0.10
Sample Depth:
0.10-0.50 m
Moisture content:
14%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	18.168	mg/kg	0.00182 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.36	mg/kg	1.142	0.354	mg/kg	0.0000354 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	30.167	mg/kg	0.00302 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		72	mg/kg	1.126	69.715	mg/kg	0.00697 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	120	mg/kg		103.2	mg/kg	0.0103 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.37	mg/kg	1.353	0.431	mg/kg	0.0000431 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32	mg/kg	2.976	81.907	mg/kg	0.00819 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.26	mg/kg	2.554	0.571	mg/kg	0.0000571 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		84	mg/kg	2.774	200.404	mg/kg	0.02 %	✓	
11	pH			PH		8.7	pH		8.7	pH	8.7 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
16		phenanthrene				2.1	mg/kg		1.806	mg/kg	0.000181 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.5	mg/kg		0.43	mg/kg	0.000043 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				3.4	mg/kg		2.924	mg/kg	0.000292 %	✓	
			205-912-4	206-44-0									
19		pyrene				2.9	mg/kg		2.494	mg/kg	0.000249 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.6	mg/kg		1.376	mg/kg	0.000138 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.3	mg/kg		1.118	mg/kg	0.000112 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.8	mg/kg		1.548	mg/kg	0.000155 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.71	mg/kg		0.611	mg/kg	0.0000611 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.8	mg/kg		1.548	mg/kg	0.000155 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.95	mg/kg		0.817	mg/kg	0.0000817 %	✓	
			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				1.4	mg/kg		1.204	mg/kg	0.00012 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				23	mg/kg	1.785	35.311	mg/kg	0.00353 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0558 %		

Key

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

Classification of sample: WS2/D2-1033725-15/07/2020-0.70

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

Sample details

Sample Name:
WS2/D2-1033725-15/07/2020-0.70
Sample Depth:
0.70-1.00 m
Moisture content:
19%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	17.111	mg/kg	0.00171 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.3	mg/kg	3.22	3.391	mg/kg	0.000339 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.17	mg/kg	1.142	0.157	mg/kg	0.0000157 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	27.229	mg/kg	0.00272 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		130	mg/kg	1.126	118.556	mg/kg	0.0119 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	1000	mg/kg		810	mg/kg	0.081 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.44	mg/kg	1.353	0.482	mg/kg	0.0000482 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		33	mg/kg	2.976	79.556	mg/kg	0.00796 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.46	mg/kg	2.554	0.951	mg/kg	0.0000951 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		91	mg/kg	2.774	204.482	mg/kg	0.0204 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
19		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
20		naphthalene				0.59	mg/kg		0.478	mg/kg	0.0000478 %	✓	
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.47	mg/kg		0.381	mg/kg	0.0000381 %	✓	
			205-917-1	208-96-8									
22		acenaphthene				0.65	mg/kg		0.527	mg/kg	0.0000527 %	✓	
			201-469-6	83-32-9									
23		fluorene				0.73	mg/kg		0.591	mg/kg	0.0000591 %	✓	
			201-695-5	86-73-7									
24		phenanthrene				5.1	mg/kg		4.131	mg/kg	0.000413 %	✓	
			201-581-5	85-01-8									
25		anthracene				1.2	mg/kg		0.972	mg/kg	0.0000972 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				8.3	mg/kg		6.723	mg/kg	0.000672 %	✓	
			205-912-4	206-44-0									
27		pyrene				8.5	mg/kg		6.885	mg/kg	0.000689 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				3.9	mg/kg		3.159	mg/kg	0.000316 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				4.1	mg/kg		3.321	mg/kg	0.000332 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				6.2	mg/kg		5.022	mg/kg	0.000502 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				2.1	mg/kg		1.701	mg/kg	0.00017 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				4.8	mg/kg		3.888	mg/kg	0.000389 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				3	mg/kg		2.43	mg/kg	0.000243 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.54	mg/kg		0.437	mg/kg	0.0000437 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				3.1	mg/kg		2.511	mg/kg	0.000251 %	✓	
			205-883-8	191-24-2									
36		vanadium { divanadium pentaoxide; vanadium pentoxide }				30	mg/kg	1.785	43.38	mg/kg	0.00434 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.136 %		

Key

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

Classification of sample: WS5/D1-1033728-15/07/2020-0.0

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
WS5/D1-1033728-15/07/2020-0.0
Sample Depth:
0.0-0..30 m
Moisture content:
6.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.5 pH)

Determinands

Moisture content: 6.7% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	17.246	mg/kg	0.00172 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.3	mg/kg	1.142	2.451	mg/kg	0.000245 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23.31	mg/kg	1.462	31.786	mg/kg	0.00318 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		0.69	mg/kg	1.923	1.238	mg/kg	0.000124 %	✓	
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22	mg/kg	1.126	23.11	mg/kg	0.00231 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	58	mg/kg		54.114	mg/kg	0.00541 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.19	mg/kg	1.353	0.24	mg/kg	0.000024 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		18	mg/kg	2.976	49.983	mg/kg	0.005 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		**<LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		47	mg/kg	2.774	121.649	mg/kg	0.0122 %	✓	
11	pH			PH		11.5	pH		11.5	pH	11.5 pH		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
12		naphthalene				2.7	mg/kg		2.519	mg/kg	0.000252 %	✓	
		601-052-00-2	202-049-5	91-20-3									
13	•	acenaphthylene				0.11	mg/kg		0.103	mg/kg	0.0000103 %	✓	
			205-917-1	208-96-8									
14	•	acenaphthene				4.7	mg/kg		4.385	mg/kg	0.000439 %	✓	
			201-469-6	83-32-9									
15	•	fluorene				3.2	mg/kg		2.986	mg/kg	0.000299 %	✓	
			201-695-5	86-73-7									
16	•	phenanthrene				18	mg/kg		16.794	mg/kg	0.00168 %	✓	
			201-581-5	85-01-8									
17	•	anthracene				4.5	mg/kg		4.198	mg/kg	0.00042 %	✓	
			204-371-1	120-12-7									
18	•	fluoranthene				19	mg/kg		17.727	mg/kg	0.00177 %	✓	
			205-912-4	206-44-0									
19	•	pyrene				16	mg/kg		14.928	mg/kg	0.00149 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				6.2	mg/kg		5.785	mg/kg	0.000578 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				7.4	mg/kg		6.904	mg/kg	0.00069 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				8.2	mg/kg		7.651	mg/kg	0.000765 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				2.6	mg/kg		2.426	mg/kg	0.000243 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				6.5	mg/kg		6.064	mg/kg	0.000606 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25	•	indeno[123-cd]pyrene				4	mg/kg		3.732	mg/kg	0.000373 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.72	mg/kg		0.672	mg/kg	0.0000672 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27	•	benzo[ghi]perylene				3.8	mg/kg		3.545	mg/kg	0.000355 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				12	mg/kg	1.785	19.987	mg/kg	0.002 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0423 %		

Key

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

Supplementary Hazardous Property Information

HP 2: Oxidizing "waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials"

Force this Hazardous property to non hazardous because Oxidisability in soils containing Cr VI up to around 100mg/kg in soil is likely to be low. In soils it is suggested that flammability/oxidisability are unlikely to result in a hazardous classification for waste soil - AGS Guidance of Waste Classification.

Hazard Statements hit:

Ox. Sol. 1; H271 "May cause fire or explosion; strong oxidiser."

Because of determinand:

chromium(VI) oxide: (compound conc.: 0.00012%)

Classification of sample: WS3B/D1-1033731-15/07/2020-0.00

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

Sample details

Sample Name:
WS3B/D1-1033731-15/07/2020-0.00
Sample Depth:
0.00-0.50 m
Moisture content:
13%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15	mg/kg	1.32	17.23	mg/kg	0.00172 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.1	mg/kg	1.142	1.093	mg/kg	0.000109 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18	mg/kg	1.462	22.888	mg/kg	0.00229 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		45	mg/kg	1.126	44.079	mg/kg	0.00441 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	160	mg/kg		139.2	mg/kg	0.0139 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.32	mg/kg	1.353	0.377	mg/kg	0.0000377 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23	mg/kg	2.976	59.555	mg/kg	0.00596 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.43	mg/kg	2.554	0.955	mg/kg	0.0000955 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		98	mg/kg	2.774	236.524	mg/kg	0.0237 %	✓	
11		pH			PH		7.8	pH		7.8	pH	7.8 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
16		phenanthrene				2.1	mg/kg		1.827	mg/kg	0.000183 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.51	mg/kg		0.444	mg/kg	0.0000444 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				3.1	mg/kg		2.697	mg/kg	0.00027 %	✓	
			205-912-4	206-44-0									
19		pyrene				2.5	mg/kg		2.175	mg/kg	0.000217 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.4	mg/kg		1.218	mg/kg	0.000122 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.4	mg/kg		1.218	mg/kg	0.000122 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.9	mg/kg		1.653	mg/kg	0.000165 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.69	mg/kg		0.6	mg/kg	0.00006 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.5	mg/kg		1.305	mg/kg	0.000131 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.95	mg/kg		0.826	mg/kg	0.0000826 %	✓	
			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				1.1	mg/kg		0.957	mg/kg	0.0000957 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				23	mg/kg	1.785	35.722	mg/kg	0.00357 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0574 %		

Key

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

Classification of sample: WS13/D1-1033734-15/07/2020-0.00

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

Sample details

Sample Name:
WS13/D1-1033734-15/07/2020-0.00
Sample Depth:
0.00-0.50 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		29	mg/kg	1.32	33.695	mg/kg	0.00337 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<**LOD**
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	30.868	mg/kg	0.00309 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		78	mg/kg	1.126	77.281	mg/kg	0.00773 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	1400	mg/kg		1232	mg/kg	0.123 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.95	mg/kg	1.353	1.132	mg/kg	0.000113 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32	mg/kg	2.976	83.812	mg/kg	0.00838 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.45	mg/kg	2.554	1.011	mg/kg	0.000101 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		320	mg/kg	2.774	781.2	mg/kg	0.0781 %	✓	
11		pH			PH		8.6	pH		8.6	pH	8.6 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
16		phenanthrene				2.8	mg/kg		2.464	mg/kg	0.000246 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.5	mg/kg		0.44	mg/kg	0.000044 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				4.7	mg/kg		4.136	mg/kg	0.000414 %	✓	
			205-912-4	206-44-0									
19		pyrene				4.1	mg/kg		3.608	mg/kg	0.000361 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.9	mg/kg		1.672	mg/kg	0.000167 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				2.3	mg/kg		2.024	mg/kg	0.000202 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				2.9	mg/kg		2.552	mg/kg	0.000255 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.1	mg/kg		0.968	mg/kg	0.0000968 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				2.2	mg/kg		1.936	mg/kg	0.000194 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				1.4	mg/kg		1.232	mg/kg	0.000123 %	✓	
			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				1.7	mg/kg		1.496	mg/kg	0.00015 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	40.845	mg/kg	0.00408 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.231 %		

Key

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

Classification of sample: WS13/D2-1033735-15/07/2020-0.80

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

Sample details

Sample Name:
WS13/D2-1033735-15/07/2020-0.80
Sample Depth:
0.80-1.70 m
Moisture content:
13%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	16.082 mg/kg	0.00161 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	1.961 mg/kg	0.000196 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.18 mg/kg	1.142	0.179 mg/kg	0.0000179 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29 mg/kg	1.462	36.875 mg/kg	0.00369 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		38 mg/kg	1.126	37.222 mg/kg	0.00372 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	80 mg/kg		69.6 mg/kg	0.00696 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.32 mg/kg	1.353	0.377 mg/kg	0.0000377 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		42 mg/kg	2.976	108.753 mg/kg	0.0109 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.51 mg/kg	2.554	1.133 mg/kg	0.000113 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		73 mg/kg	2.774	176.186 mg/kg	0.0176 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		130 mg/kg		113.1 mg/kg	0.0113 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
20		pH			PH		7.6	pH		7.6	pH	7.6 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		1.2	mg/kg		1.044	mg/kg	0.000104 %	✓	
26		anthracene		204-371-1	120-12-7		0.29	mg/kg		0.252	mg/kg	0.0000252 %	✓	
27		fluoranthene		205-912-4	206-44-0		1.7	mg/kg		1.479	mg/kg	0.000148 %	✓	
28		pyrene		204-927-3	129-00-0		2.4	mg/kg		2.088	mg/kg	0.000209 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.7	mg/kg		1.479	mg/kg	0.000148 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		1.6	mg/kg		1.392	mg/kg	0.000139 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2.9	mg/kg		2.523	mg/kg	0.000252 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.2	mg/kg		1.044	mg/kg	0.000104 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3.3	mg/kg		2.871	mg/kg	0.000287 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		2	mg/kg		1.74	mg/kg	0.000174 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		2.3	mg/kg		2.001	mg/kg	0.0002 %	✓	
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		31	mg/kg	1.785	48.146	mg/kg	0.00481 %	✓	
											Total:	0.063 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0113%)

Classification of sample: WS3/D1-1033737-15/07/2020-0.10

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

Sample details

Sample Name:
WS3/D1-1033737-15/07/2020-0.10
Sample Depth:
0.10-0.40 m
Moisture content:
9.7%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.7% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		33	mg/kg	1.32	39.344	mg/kg	0.00393 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<**LOD**
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	31.675	mg/kg	0.00317 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		84	mg/kg	1.126	85.401	mg/kg	0.00854 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	520	mg/kg		469.56	mg/kg	0.047 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.48	mg/kg	1.353	0.587	mg/kg	0.0000587 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		29	mg/kg	2.976	77.939	mg/kg	0.00779 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.34	mg/kg	2.554	0.784	mg/kg	0.0000784 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		120	mg/kg	2.774	300.607	mg/kg	0.0301 %	✓	
11		pH			PH		8.3	pH		8.3	pH	8.3 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		0.46	mg/kg		0.415	mg/kg	0.0000415 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.24	mg/kg		0.217	mg/kg	0.0000217 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				2.5	mg/kg		2.258	mg/kg	0.000226 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.4	mg/kg		1.264	mg/kg	0.000126 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				13	mg/kg		11.739	mg/kg	0.00117 %	✓	
			201-581-5	85-01-8									
17		anthracene				3.1	mg/kg		2.799	mg/kg	0.00028 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				20	mg/kg		18.06	mg/kg	0.00181 %	✓	
			205-912-4	206-44-0									
19		pyrene				18	mg/kg		16.254	mg/kg	0.00163 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				8.3	mg/kg		7.495	mg/kg	0.000749 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				8.6	mg/kg		7.766	mg/kg	0.000777 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				10	mg/kg		9.03	mg/kg	0.000903 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				4.1	mg/kg		3.702	mg/kg	0.00037 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				9	mg/kg		8.127	mg/kg	0.000813 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				5.1	mg/kg		4.605	mg/kg	0.000461 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				1.2	mg/kg		1.084	mg/kg	0.000108 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				5	mg/kg		4.515	mg/kg	0.000451 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				27	mg/kg	1.785	43.525	mg/kg	0.00435 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
29		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.116 %		

Key

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

Classification of sample: WS3/D2-1033738-15/07/2020-0.8

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

Sample details

Sample Name:
WS3/D2-1033738-15/07/2020-0.8
Sample Depth:
0.8-1.2 m
Moisture content:
16%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12	mg/kg	1.32	13.309	mg/kg	0.00133 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		3.8	mg/kg	1.142	3.646	mg/kg	0.000365 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		53	mg/kg	1.462	65.068	mg/kg	0.00651 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		130	mg/kg	1.126	122.947	mg/kg	0.0123 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	210	mg/kg		176.4	mg/kg	0.0176 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.3	mg/kg	1.353	1.478	mg/kg	0.000148 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		28	mg/kg	2.976	70.002	mg/kg	0.007 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.58	mg/kg	2.554	1.244	mg/kg	0.000124 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		350	mg/kg	2.774	815.599	mg/kg	0.0816 %	✓	
11	pH			PH		8	pH		8	pH	8pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.4	mg/kg		0.336	mg/kg	0.0000336 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.11	mg/kg		0.0924	mg/kg	0.00000924 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				1.6	mg/kg		1.344	mg/kg	0.000134 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.2	mg/kg		1.008	mg/kg	0.000101 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				8.4	mg/kg		7.056	mg/kg	0.000706 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.9	mg/kg		1.596	mg/kg	0.00016 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				16	mg/kg		13.44	mg/kg	0.00134 %	✓	
			205-912-4	206-44-0									
19		pyrene				15	mg/kg		12.6	mg/kg	0.00126 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				8.4	mg/kg		7.056	mg/kg	0.000706 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				7.8	mg/kg		6.552	mg/kg	0.000655 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				11	mg/kg		9.24	mg/kg	0.000924 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				4.4	mg/kg		3.696	mg/kg	0.00037 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				10	mg/kg		8.4	mg/kg	0.00084 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				6.5	mg/kg		5.46	mg/kg	0.000546 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				6.1	mg/kg		5.124	mg/kg	0.000512 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				20	mg/kg	1.785	29.991	mg/kg	0.003 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.138 %		

Key

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

Classification of sample: TP118/D1-1033739-15/07/2020-0.20

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

Sample details

Sample Name:
TP118/D1-1033739-15/07/2020-0.20
Sample Depth:
0.20-1.00 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		23	mg/kg	1.32	27.027	mg/kg	0.0027 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.3	mg/kg	1.142	2.338	mg/kg	0.000234 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27	mg/kg	1.462	35.121	mg/kg	0.00351 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		210	mg/kg	1.126	210.429	mg/kg	0.021 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	480	mg/kg		427.2	mg/kg	0.0427 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.83	mg/kg	1.353	1.0	mg/kg	0.0001 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		31	mg/kg	2.976	82.115	mg/kg	0.00821 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.25	mg/kg	2.554	0.568	mg/kg	0.0000568 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		160	mg/kg	2.774	395.038	mg/kg	0.0395 %	✓	
11	pH			PH		8.5	pH		8.5	pH	8.5 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-695-5	86-73-7									
16		phenanthrene				0.88	mg/kg		0.783	mg/kg	0.0000783 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.28	mg/kg		0.249	mg/kg	0.0000249 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				1.1	mg/kg		0.979	mg/kg	0.0000979 %	✓	
			205-912-4	206-44-0									
19		pyrene				1.2	mg/kg		1.068	mg/kg	0.000107 %	✓	
			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									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	46.076	mg/kg	0.00461 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.123 %		

Key

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

Classification of sample: TP119/D2-1033742-15/07/2020-0.40

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP119/D2-1033742-15/07/2020-0.40
Sample Depth:
0.40-0.80 m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.223%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.223%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		31 mg/kg	1.32	36.428 mg/kg	0.00364 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.61 mg/kg	3.22	1.748 mg/kg	0.000175 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.7 mg/kg	1.142	1.728 mg/kg	0.000173 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	26.016 mg/kg	0.0026 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		480 mg/kg	1.126	480.979 mg/kg	0.0481 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
7		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	360	mg/kg		320.4	mg/kg	0.032 %	✓	
		082-001-00-6											
8		mercury { mercury dichloride }				0.72	mg/kg	1.353	0.867	mg/kg	0.0000867 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel chromate }				47	mg/kg	2.976	124.497	mg/kg	0.0124 %	✓	
		028-035-00-7	238-766-5	14721-18-7									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.2	mg/kg	2.554	2.727	mg/kg	0.000273 %	✓	
		034-002-00-8											
11		zinc { zinc chromate }				120	mg/kg	2.774	296.279	mg/kg	0.0296 %	✓	
		024-007-00-3	236-878-9	13530-65-9									
12		TPH (C6 to C40) petroleum group				2500	mg/kg		2225	mg/kg	0.223 %	✓	
				TPH									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				7.8	mg/kg	1.884	13.079	mg/kg	0.00131 %	✓	
		006-007-00-5											
20		pH				8	pH		8	pH	8pH		
				PH									
21		naphthalene				15	mg/kg		13.35	mg/kg	0.00134 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				6.8	mg/kg		6.052	mg/kg	0.000605 %	✓	
			205-917-1	208-96-8									
23		acenaphthene				33	mg/kg		29.37	mg/kg	0.00294 %	✓	
			201-469-6	83-32-9									
24		fluorene				27	mg/kg		24.03	mg/kg	0.0024 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				210	mg/kg		186.9	mg/kg	0.0187 %	✓	
			201-581-5	85-01-8									
26		anthracene				60	mg/kg		53.4	mg/kg	0.00534 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				250	mg/kg		222.5	mg/kg	0.0222 %	✓	
			205-912-4	206-44-0									
28		pyrene				250	mg/kg		222.5	mg/kg	0.0222 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				160	mg/kg		142.4	mg/kg	0.0142 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				170	mg/kg		151.3	mg/kg	0.0151 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				270	mg/kg		240.3	mg/kg	0.024 %	✓	
		601-034-00-4	205-911-9	205-99-2									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
32		benzo[k]fluoranthene				120	mg/kg		106.8	mg/kg	0.0107 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				370	mg/kg		329.3	mg/kg	0.0329 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				270	mg/kg		240.3	mg/kg	0.024 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				56	mg/kg		49.84	mg/kg	0.00498 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				310	mg/kg		275.9	mg/kg	0.0276 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				24	mg/kg	1.785	38.132	mg/kg	0.00381 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.586 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.223%)

Classification of sample: TP111/D1-1033745-15/07/2020-0.10

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

Sample details

Sample Name:
TP111/D1-1033745-15/07/2020-0.10
Sample Depth:
0.10-1.10 m
Moisture content:
13%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		37	mg/kg	1.32	42.501	mg/kg	0.00425 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.33	mg/kg	1.142	0.328	mg/kg	0.0000328 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	29.246	mg/kg	0.00292 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		**<LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		76	mg/kg	1.126	74.444	mg/kg	0.00744 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	300	mg/kg		261	mg/kg	0.0261 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.27	mg/kg	1.353	0.318	mg/kg	0.0000318 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		52	mg/kg	2.976	134.646	mg/kg	0.0135 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.65	mg/kg	2.554	1.444	mg/kg	0.000144 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		75	mg/kg	2.774	181.013	mg/kg	0.0181 %	✓	
11		pH			PH		8.2	pH		8.2	pH	8.2 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		22	mg/kg		19.14	mg/kg	0.00191 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.49	mg/kg		0.426	mg/kg	0.0000426 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				18	mg/kg		15.66	mg/kg	0.00157 %	✓	
			201-469-6	83-32-9									
15		fluorene				13	mg/kg		11.31	mg/kg	0.00113 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				78	mg/kg		67.86	mg/kg	0.00679 %	✓	
			201-581-5	85-01-8									
17		anthracene				17	mg/kg		14.79	mg/kg	0.00148 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				54	mg/kg		46.98	mg/kg	0.0047 %	✓	
			205-912-4	206-44-0									
19		pyrene				56	mg/kg		48.72	mg/kg	0.00487 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				24	mg/kg		20.88	mg/kg	0.00209 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				25	mg/kg		21.75	mg/kg	0.00217 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				27	mg/kg		23.49	mg/kg	0.00235 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				8.6	mg/kg		7.482	mg/kg	0.000748 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				23	mg/kg		20.01	mg/kg	0.002 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				11	mg/kg		9.57	mg/kg	0.000957 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				2.9	mg/kg		2.523	mg/kg	0.000252 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				11	mg/kg		9.57	mg/kg	0.000957 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				32	mg/kg	1.785	49.7	mg/kg	0.00497 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.112 %		

Key

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

Classification of sample: TP113/D1-1033747-15/07/2020-0.00

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

Sample details

Sample Name:
TP113/D1-1033747-15/07/2020-0.00
Sample Depth:
0.00-0.30 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		20	mg/kg	1.32	23.238	mg/kg	0.00232 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.56	mg/kg	1.142	0.563	mg/kg	0.0000563 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26	mg/kg	1.462	33.44	mg/kg	0.00334 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		63	mg/kg	1.126	62.419	mg/kg	0.00624 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	240	mg/kg		211.2	mg/kg	0.0211 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1	mg/kg	1.353	1.191	mg/kg	0.000119 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26	mg/kg	2.976	68.097	mg/kg	0.00681 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		130	mg/kg	2.774	317.362	mg/kg	0.0317 %	✓	
11		pH			PH		8.2	pH		8.2	pH	8.2 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		1.2	mg/kg		1.056	mg/kg	0.000106 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.19	mg/kg		0.167	mg/kg	0.0000167 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				1.1	mg/kg		0.968	mg/kg	0.0000968 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.76	mg/kg		0.669	mg/kg	0.0000669 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				6.6	mg/kg		5.808	mg/kg	0.000581 %	✓	
			201-581-5	85-01-8									
17		anthracene				2.2	mg/kg		1.936	mg/kg	0.000194 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				13	mg/kg		11.44	mg/kg	0.00114 %	✓	
			205-912-4	206-44-0									
19		pyrene				12	mg/kg		10.56	mg/kg	0.00106 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				5.7	mg/kg		5.016	mg/kg	0.000502 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				5.2	mg/kg		4.576	mg/kg	0.000458 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				7.3	mg/kg		6.424	mg/kg	0.000642 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				2.3	mg/kg		2.024	mg/kg	0.000202 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				6.4	mg/kg		5.632	mg/kg	0.000563 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				3.5	mg/kg		3.08	mg/kg	0.000308 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.78	mg/kg		0.686	mg/kg	0.0000686 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				3.6	mg/kg		3.168	mg/kg	0.000317 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				24	mg/kg	1.785	37.703	mg/kg	0.00377 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.082 %		

Key

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

Classification of sample: TP112/D2-1033751-15/07/2020-0.30

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

Sample details

Sample Name:
TP112/D2-1033751-15/07/2020-0.30
Sample Depth:
0.30-1.00 m
Moisture content:
9%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	13.216 mg/kg	0.00132 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.72 mg/kg	3.22	2.11 mg/kg	0.000211 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.19 mg/kg	1.142	0.198 mg/kg	0.0000198 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	15.96 mg/kg	0.0016 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	22.54 mg/kg	0.00225 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	42 mg/kg		38.22 mg/kg	0.00382 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13 mg/kg	2.976	35.209 mg/kg	0.00352 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		41 mg/kg	2.774	103.503 mg/kg	0.0104 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		220 mg/kg		200.2 mg/kg	0.02 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑					

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
20		pH			PH		10.9	pH		10.9	pH	10.9 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		2	mg/kg		1.82	mg/kg	0.000182 %	✓	
26		anthracene		204-371-1	120-12-7		0.65	mg/kg		0.592	mg/kg	0.0000592 %	✓	
27		fluoranthene		205-912-4	206-44-0		2.8	mg/kg		2.548	mg/kg	0.000255 %	✓	
28		pyrene		204-927-3	129-00-0		2.6	mg/kg		2.366	mg/kg	0.000237 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.2	mg/kg		1.092	mg/kg	0.000109 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		1.2	mg/kg		1.092	mg/kg	0.000109 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.9	mg/kg		1.729	mg/kg	0.000173 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.97	mg/kg		0.883	mg/kg	0.0000883 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.8	mg/kg		1.638	mg/kg	0.000164 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		1.1	mg/kg		1.001	mg/kg	0.0001 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		1.3	mg/kg		1.183	mg/kg	0.000118 %	✓	
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		13	mg/kg	1.785	21.119	mg/kg	0.00211 %	✓	
											Total:	0.0471 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.02%)

Classification of sample: TP108/D1-1033755-15/07/2020-0.00

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

Sample details

Sample Name:
TP108/D1-1033755-15/07/2020-0.00
Sample Depth:
0.00-0.30 m
Moisture content:
15%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	17.956	mg/kg	0.0018 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.56	mg/kg	1.142	0.544	mg/kg	0.0000544 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	27.331	mg/kg	0.00273 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		58	mg/kg	1.126	55.506	mg/kg	0.00555 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	170	mg/kg		144.5	mg/kg	0.0145 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.51	mg/kg	1.353	0.587	mg/kg	0.0000587 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22	mg/kg	2.976	55.656	mg/kg	0.00557 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.3	mg/kg	2.554	0.651	mg/kg	0.0000651 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110	mg/kg	2.774	259.383	mg/kg	0.0259 %	✓	
11	pH			PH		8.4	pH		8.4	pH	8.4 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.75	mg/kg		0.638	mg/kg	0.0000637 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.21	mg/kg		0.179	mg/kg	0.0000179 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				2.5	mg/kg		2.125	mg/kg	0.000213 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.7	mg/kg		1.445	mg/kg	0.000145 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				13	mg/kg		11.05	mg/kg	0.00111 %	✓	
			201-581-5	85-01-8									
17		anthracene				3.1	mg/kg		2.635	mg/kg	0.000263 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				19	mg/kg		16.15	mg/kg	0.00161 %	✓	
			205-912-4	206-44-0									
19		pyrene				17	mg/kg		14.45	mg/kg	0.00145 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				8	mg/kg		6.8	mg/kg	0.00068 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				8.4	mg/kg		7.14	mg/kg	0.000714 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				11	mg/kg		9.35	mg/kg	0.000935 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				4.1	mg/kg		3.485	mg/kg	0.000349 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				9	mg/kg		7.65	mg/kg	0.000765 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				5.1	mg/kg		4.335	mg/kg	0.000433 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.93	mg/kg		0.791	mg/kg	0.0000791 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				5.6	mg/kg		4.76	mg/kg	0.000476 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	28.831	mg/kg	0.00288 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0685 %		

Key

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

Classification of sample: TP101/D1-1033759-15/07/2020-0.00

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

Sample details

Sample Name:
TP101/D1-1033759-15/07/2020-0.00
Sample Depth:
0.00-1.00 m
Moisture content:
10%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		62	mg/kg	1.32	73.674	mg/kg	0.00737 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.76	mg/kg	3.22	2.202	mg/kg	0.00022 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.98	mg/kg	1.142	1.008	mg/kg	0.000101 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		38	mg/kg	1.462	49.985	mg/kg	0.005 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		260	mg/kg	1.126	263.458	mg/kg	0.0263 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	490	mg/kg		441	mg/kg	0.0441 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		2.1	mg/kg	1.353	2.558	mg/kg	0.000256 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		51	mg/kg	2.976	136.611	mg/kg	0.0137 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.87	mg/kg	2.554	1.999	mg/kg	0.0002 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		190	mg/kg	2.774	474.379	mg/kg	0.0474 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		110	mg/kg		99	mg/kg	0.0099 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				1.1	mg/kg	1.884	1.865	mg/kg	0.000187 %	✓	
		006-007-00-5											
20		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
21		naphthalene				0.56	mg/kg		0.504	mg/kg	0.0000504 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.18	mg/kg		0.162	mg/kg	0.0000162 %	✓	
			205-917-1	208-96-8									
23		acenaphthene				0.72	mg/kg		0.648	mg/kg	0.0000648 %	✓	
			201-469-6	83-32-9									
24		fluorene				0.55	mg/kg		0.495	mg/kg	0.0000495 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				5.7	mg/kg		5.13	mg/kg	0.000513 %	✓	
			201-581-5	85-01-8									
26		anthracene				1.2	mg/kg		1.08	mg/kg	0.000108 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				5.8	mg/kg		5.22	mg/kg	0.000522 %	✓	
			205-912-4	206-44-0									
28		pyrene				6.4	mg/kg		5.76	mg/kg	0.000576 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				3.1	mg/kg		2.79	mg/kg	0.000279 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				3.6	mg/kg		3.24	mg/kg	0.000324 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				5.1	mg/kg		4.59	mg/kg	0.000459 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				1.6	mg/kg		1.44	mg/kg	0.000144 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				5.4	mg/kg		4.86	mg/kg	0.000486 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				4.1	mg/kg		3.69	mg/kg	0.000369 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.73	mg/kg		0.657	mg/kg	0.0000657 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				4.1	mg/kg		3.69	mg/kg	0.000369 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				86	mg/kg	1.785	138.173	mg/kg	0.0138 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.173 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0099%)

Classification of sample: WS9/D1-14/07/2020-0.00

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

Sample details

Sample Name:
WS9/D1-14/07/2020-0.00
Sample Depth:
0.00-0.60 m
Moisture content:
18%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		99	mg/kg	1.32	107.184	mg/kg	0.0107 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.25	mg/kg	1.142	0.234	mg/kg	0.0000234 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30	mg/kg	1.462	35.954	mg/kg	0.0036 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		230	mg/kg	1.126	212.343	mg/kg	0.0212 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	710	mg/kg		582.2	mg/kg	0.0582 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		3	mg/kg	1.353	3.33	mg/kg	0.000333 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		86	mg/kg	2.976	209.886	mg/kg	0.021 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1	mg/kg	2.554	2.303	mg/kg	0.00023 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		190	mg/kg	2.774	432.212	mg/kg	0.0432 %	✓	
11	pH			PH		8.2	pH		8.2	pH	8.2 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
16		phenanthrene				0.93	mg/kg		0.763	mg/kg	0.0000763 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.23	mg/kg		0.189	mg/kg	0.0000189 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				1.4	mg/kg		1.148	mg/kg	0.000115 %	✓	
			205-912-4	206-44-0									
19		pyrene				1.3	mg/kg		1.066	mg/kg	0.000107 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1	mg/kg		0.82	mg/kg	0.000082 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.89	mg/kg		0.73	mg/kg	0.000073 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.3	mg/kg		1.066	mg/kg	0.000107 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.45	mg/kg		0.369	mg/kg	0.0000369 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.2	mg/kg		0.984	mg/kg	0.0000984 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				1.1	mg/kg		0.902	mg/kg	0.0000902 %	✓	
			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				0.89	mg/kg		0.73	mg/kg	0.000073 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				71	mg/kg	1.785	103.933	mg/kg	0.0104 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.17 %		

Key

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

Classification of sample: WS9/D2-14/07/2020-1.50

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

Sample details

Sample Name:
WS9/D2-14/07/2020-1.50
Sample Depth:
1.50-1.80 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		pH		PH		8.2 pH		8.2 pH	8.2 pH		
								Total:	0%		

Key

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

Classification of sample: WS11D/D1-14/07/2020-0.00

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

Sample details

Sample Name:
WS11D/D1-14/07/2020-0.00
Sample Depth:
0.00-0.40 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22	mg/kg	1.32	25.852	mg/kg	0.00259 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		11	mg/kg	1.142	11.183	mg/kg	0.00112 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		56	mg/kg	1.462	72.844	mg/kg	0.00728 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		150	mg/kg	1.126	150.306	mg/kg	0.015 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	270	mg/kg		240.3	mg/kg	0.024 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		5.1	mg/kg	1.353	6.143	mg/kg	0.000614 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		37	mg/kg	2.976	98.008	mg/kg	0.0098 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.36	mg/kg	2.554	0.818	mg/kg	0.0000818 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		190	mg/kg	2.774	469.108	mg/kg	0.0469 %	✓	
11	pH			PH		8.2	pH		8.2	pH	8.2 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.37	mg/kg		0.329	mg/kg	0.0000329 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.13	mg/kg		0.116	mg/kg	0.0000116 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.27	mg/kg		0.24	mg/kg	0.000024 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.24	mg/kg		0.214	mg/kg	0.0000214 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				2.6	mg/kg		2.314	mg/kg	0.000231 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.64	mg/kg		0.57	mg/kg	0.000057 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				4.3	mg/kg		3.827	mg/kg	0.000383 %	✓	
			205-912-4	206-44-0									
19		pyrene				4	mg/kg		3.56	mg/kg	0.000356 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				2.2	mg/kg		1.958	mg/kg	0.000196 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				2	mg/kg		1.78	mg/kg	0.000178 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				3	mg/kg		2.67	mg/kg	0.000267 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.98	mg/kg		0.872	mg/kg	0.0000872 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				2.7	mg/kg		2.403	mg/kg	0.00024 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				1.8	mg/kg		1.602	mg/kg	0.00016 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.39	mg/kg		0.347	mg/kg	0.0000347 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.5	mg/kg		1.335	mg/kg	0.000133 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				35	mg/kg	1.785	55.609	mg/kg	0.00556 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.116 %		

Key

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

Classification of sample: WS12/D2-14/07/2020-0.30

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

Sample details

Sample Name:
WS12/D2-14/07/2020-0.30
Sample Depth:
0.30-1.00 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14 mg/kg	1.32	16.266 mg/kg	0.00163 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.89 mg/kg	1.142	0.895 mg/kg	0.0000895 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	18.006 mg/kg	0.0018 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		35 mg/kg	1.126	34.677 mg/kg	0.00347 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	56 mg/kg		49.28 mg/kg	0.00493 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.46 mg/kg	1.353	0.548 mg/kg	0.0000548 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		15 mg/kg	2.976	39.287 mg/kg	0.00393 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		44 mg/kg	2.774	107.415 mg/kg	0.0107 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.46	mg/kg		0.405	mg/kg	0.0000405 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				0.6	mg/kg		0.528	mg/kg	0.0000528 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.53	mg/kg		0.466	mg/kg	0.0000466 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.28	mg/kg		0.246	mg/kg	0.0000246 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.25	mg/kg		0.22	mg/kg	0.000022 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.4	mg/kg		0.352	mg/kg	0.0000352 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.11	mg/kg		0.0968	mg/kg	0.00000968 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.33	mg/kg		0.29	mg/kg	0.000029 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		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									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		vanadium { divanadium pentaoxide; vanadium pentoxide }				17	mg/kg	1.785	26.706	mg/kg	0.00267 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.031 %		

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

Classification of sample: WS6/D1-14/07/2020-0.00

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

Sample details

Sample Name:
WS6/D1-14/07/2020-0.00
Sample Depth:
0.00-0.30 m
Moisture content:
10%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		29	mg/kg	1.32	34.46	mg/kg	0.00345 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.72	mg/kg	1.142	0.74	mg/kg	0.000074 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	27.623	mg/kg	0.00276 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		77	mg/kg	1.126	78.024	mg/kg	0.0078 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	200	mg/kg		180	mg/kg	0.018 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.47	mg/kg	1.353	0.573	mg/kg	0.0000573 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		29	mg/kg	2.976	77.681	mg/kg	0.00777 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		130	mg/kg	2.774	324.575	mg/kg	0.0325 %	✓	
11		pH			PH		8.7	pH		8.7	pH	8.7 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		0.55	mg/kg		0.495	mg/kg	0.0000495 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.22	mg/kg		0.198	mg/kg	0.0000198 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.81	mg/kg		0.729	mg/kg	0.0000729 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.94	mg/kg		0.846	mg/kg	0.0000846 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				12	mg/kg		10.8	mg/kg	0.00108 %	✓	
			201-581-5	85-01-8									
17		anthracene				2.9	mg/kg		2.61	mg/kg	0.000261 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				21	mg/kg		18.9	mg/kg	0.00189 %	✓	
			205-912-4	206-44-0									
19		pyrene				18	mg/kg		16.2	mg/kg	0.00162 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				10	mg/kg		9	mg/kg	0.0009 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				8.4	mg/kg		7.56	mg/kg	0.000756 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				13	mg/kg		11.7	mg/kg	0.00117 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				4.6	mg/kg		4.14	mg/kg	0.000414 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				11	mg/kg		9.9	mg/kg	0.00099 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				8.3	mg/kg		7.47	mg/kg	0.000747 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				1.3	mg/kg		1.17	mg/kg	0.000117 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				6.3	mg/kg		5.67	mg/kg	0.000567 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				30	mg/kg	1.785	48.2	mg/kg	0.00482 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0881 %		

Key

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

Classification of sample: WS6/D3-14/07/2020-0.80

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

Sample details

Sample Name:
WS6/D3-14/07/2020-0.80
Sample Depth:
0.80-1.00 m
Moisture content:
15%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		pH		PH		8.5 pH		8.5 pH	8.5 pH		
								Total:	0%		

Key

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

Classification of sample: WS7C/D1-14/07/2020-0.00

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

Sample details

Sample Name:
WS7C/D1-14/07/2020-0.00
Sample Depth:
0.00-0.60 m
Moisture content:
10%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		29	mg/kg	1.32	34.46	mg/kg	0.00345 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.7	mg/kg	1.142	1.748	mg/kg	0.000175 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30	mg/kg	1.462	39.462	mg/kg	0.00395 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		120	mg/kg	1.126	121.596	mg/kg	0.0122 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	350	mg/kg		315	mg/kg	0.0315 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.65	mg/kg	1.353	0.792	mg/kg	0.0000792 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		38	mg/kg	2.976	101.788	mg/kg	0.0102 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		270	mg/kg	2.774	674.118	mg/kg	0.0674 %	✓	
11	pH			PH		8.5	pH		8.5	pH	8.5 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-695-5	86-73-7									
16		phenanthrene				3.8	mg/kg		3.42	mg/kg	0.000342 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.96	mg/kg		0.864	mg/kg	0.0000864 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				6.1	mg/kg		5.49	mg/kg	0.000549 %	✓	
			205-912-4	206-44-0									
19		pyrene				5.4	mg/kg		4.86	mg/kg	0.000486 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				3.1	mg/kg		2.79	mg/kg	0.000279 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				2.7	mg/kg		2.43	mg/kg	0.000243 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				4.1	mg/kg		3.69	mg/kg	0.000369 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.4	mg/kg		1.26	mg/kg	0.000126 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				3.7	mg/kg		3.33	mg/kg	0.000333 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				2.6	mg/kg		2.34	mg/kg	0.000234 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.42	mg/kg		0.378	mg/kg	0.0000378 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.9	mg/kg		1.71	mg/kg	0.000171 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				31	mg/kg	1.785	49.807	mg/kg	0.00498 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.137 %		

Key

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

Classification of sample: WS8/D2-14/07/2020-0.80

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

Sample details

Sample Name:
WS8/D2-14/07/2020-0.80
Sample Depth:
0.80-1.50 m
Moisture content:
13%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		20	mg/kg	1.32	22.974	mg/kg	0.0023 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.43	mg/kg	3.22	1.205	mg/kg	0.00012 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.39	mg/kg	1.142	0.388	mg/kg	0.0000388 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	26.703	mg/kg	0.00267 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		51	mg/kg	1.126	49.956	mg/kg	0.005 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	110	mg/kg		95.7	mg/kg	0.00957 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2	mg/kg	1.353	0.236	mg/kg	0.0000236 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		35	mg/kg	2.976	90.627	mg/kg	0.00906 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.21	mg/kg	2.554	0.467	mg/kg	0.0000467 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		88	mg/kg	2.774	212.389	mg/kg	0.0212 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		64	mg/kg		55.68	mg/kg	0.00557 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
20		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				2.4	mg/kg		2.088	mg/kg	0.000209 %	✓	
			201-581-5	85-01-8									
26		anthracene				0.68	mg/kg		0.592	mg/kg	0.0000592 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				4.7	mg/kg		4.089	mg/kg	0.000409 %	✓	
			205-912-4	206-44-0									
28		pyrene				4.3	mg/kg		3.741	mg/kg	0.000374 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				2.5	mg/kg		2.175	mg/kg	0.000217 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				2.1	mg/kg		1.827	mg/kg	0.000183 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				3.4	mg/kg		2.958	mg/kg	0.000296 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				1	mg/kg		0.87	mg/kg	0.000087 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				3.1	mg/kg		2.697	mg/kg	0.00027 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				2.4	mg/kg		2.088	mg/kg	0.000209 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.42	mg/kg		0.365	mg/kg	0.0000365 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				2.1	mg/kg		1.827	mg/kg	0.000183 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	40.381	mg/kg	0.00404 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0624 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00557%)

Classification of sample: TP117/D2-14/07/2020-0.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP117/D2-14/07/2020-0.20
Sample Depth:
0.20-1.20 m
Moisture content:
18%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.353%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.353%)

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		50 mg/kg	1.32	54.133 mg/kg	0.00541 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.97 mg/kg	3.22	2.561 mg/kg	0.000256 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.124 mg/kg	0.000112 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	23.97 mg/kg	0.0024 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		220 mg/kg	1.126	203.11 mg/kg	0.0203 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	490	mg/kg		401.8	mg/kg	0.0402 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.3	mg/kg	1.353	1.443	mg/kg	0.000144 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		57	mg/kg	2.976	139.111	mg/kg	0.0139 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1	mg/kg	2.554	2.303	mg/kg	0.00023 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		200	mg/kg	2.774	454.96	mg/kg	0.0455 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		4300	mg/kg		3526	mg/kg	0.353 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
17	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				2.3	mg/kg	1.884	3.553	mg/kg	0.000355 %	✓	
20	pH			PH		9	pH		9	pH	9pH		
21	naphthalene	601-052-00-2	202-049-5	91-20-3		19	mg/kg		15.58	mg/kg	0.00156 %	✓	
22	acenaphthylene		205-917-1	208-96-8		3.1	mg/kg		2.542	mg/kg	0.000254 %	✓	
23	acenaphthene		201-469-6	83-32-9		7.5	mg/kg		6.15	mg/kg	0.000615 %	✓	
24	fluorene		201-695-5	86-73-7		8.1	mg/kg		6.642	mg/kg	0.000664 %	✓	
25	phenanthrene		201-581-5	85-01-8		68	mg/kg		55.76	mg/kg	0.00558 %	✓	
26	anthracene		204-371-1	120-12-7		15	mg/kg		12.3	mg/kg	0.00123 %	✓	
27	fluoranthene		205-912-4	206-44-0		69	mg/kg		56.58	mg/kg	0.00566 %	✓	
28	pyrene		204-927-3	129-00-0		68	mg/kg		55.76	mg/kg	0.00558 %	✓	
29	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		39	mg/kg		31.98	mg/kg	0.0032 %	✓	
30	chrysene	601-048-00-0	205-923-4	218-01-9		34	mg/kg		27.88	mg/kg	0.00279 %	✓	
31	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		42	mg/kg		34.44	mg/kg	0.00344 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
32		benzo[k]fluoranthene				16	mg/kg		13.12	mg/kg	0.00131 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				43	mg/kg		35.26	mg/kg	0.00353 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				29	mg/kg		23.78	mg/kg	0.00238 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				6.1	mg/kg		5.002	mg/kg	0.0005 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				23	mg/kg		18.86	mg/kg	0.00189 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				35	mg/kg	1.785	51.235	mg/kg	0.00512 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.527 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.353%)

Classification of sample: TP120/D1-14/07/2020-0.10

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

Sample details

Sample Name:
TP120/D1-14/07/2020-0.10
Sample Depth:
0.10-0.80 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22	mg/kg	1.32	25.561	mg/kg	0.00256 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.58	mg/kg	1.142	0.583	mg/kg	0.0000583 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28	mg/kg	1.462	36.013	mg/kg	0.0036 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		64	mg/kg	1.126	63.41	mg/kg	0.00634 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	240	mg/kg		211.2	mg/kg	0.0211 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.53	mg/kg	1.353	0.631	mg/kg	0.0000631 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		19	mg/kg	2.976	49.763	mg/kg	0.00498 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		120	mg/kg	2.774	292.95	mg/kg	0.0293 %	✓	
11	pH			PH		9.4	pH		9.4	pH	9.4 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.31	mg/kg		0.273	mg/kg	0.0000273 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.13	mg/kg		0.114	mg/kg	0.0000114 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.54	mg/kg		0.475	mg/kg	0.0000475 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.41	mg/kg		0.361	mg/kg	0.0000361 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				5.2	mg/kg		4.576	mg/kg	0.000458 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.1	mg/kg		0.968	mg/kg	0.0000968 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				8.8	mg/kg		7.744	mg/kg	0.000774 %	✓	
			205-912-4	206-44-0									
19		pyrene				8	mg/kg		7.04	mg/kg	0.000704 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				4.4	mg/kg		3.872	mg/kg	0.000387 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				3.8	mg/kg		3.344	mg/kg	0.000334 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				5.2	mg/kg		4.576	mg/kg	0.000458 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.7	mg/kg		1.496	mg/kg	0.00015 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				4.6	mg/kg		4.048	mg/kg	0.000405 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				3.3	mg/kg		2.904	mg/kg	0.00029 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.73	mg/kg		0.642	mg/kg	0.0000642 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				2.7	mg/kg		2.376	mg/kg	0.000238 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				24	mg/kg	1.785	37.703	mg/kg	0.00377 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0764 %		

Key

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

Classification of sample: TP125/D2-14/07/2020-0.30

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

Sample details

Sample Name:
TP125/D2-14/07/2020-0.30
Sample Depth:
0.30-1.20 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		24 mg/kg	1.32	28.202 mg/kg	0.00282 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		0.49 mg/kg	1.142	0.498 mg/kg	0.0000498 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		17 mg/kg	1.462	22.113 mg/kg	0.00221 %	✓	
	/ 215-160-9 / 1308-38-9							
4	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							
5	copper { dicopper oxide; copper (I) oxide }		53 mg/kg	1.126	53.108 mg/kg	0.00531 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	1	120 mg/kg		106.8 mg/kg	0.0107 %	✓	
	082-001-00-6 / /							
7	mercury { mercury dichloride }		0.26 mg/kg	1.353	0.313 mg/kg	0.0000313 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		21 mg/kg	2.976	55.626 mg/kg	0.00556 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	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 / /							
10	zinc { zinc chromate }		100 mg/kg	2.774	246.899 mg/kg	0.0247 %	✓	
	024-007-00-3 / 236-878-9 / 13530-65-9							
11	pH		9.4 pH		9.4 pH	9.4 pH		
	/ / PH							
12	naphthalene		1.7 mg/kg		1.513 mg/kg	0.000151 %	✓	
	601-052-00-2 / 202-049-5 / 91-20-3							
13	acenaphthylene		4 mg/kg		3.56 mg/kg	0.000356 %	✓	
	/ 205-917-1 / 208-96-8							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				3.5	mg/kg		3.115	mg/kg	0.000312 %	✓	
			201-469-6	83-32-9									
15		fluorene				5.6	mg/kg		4.984	mg/kg	0.000498 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				54	mg/kg		48.06	mg/kg	0.00481 %	✓	
			201-581-5	85-01-8									
17		anthracene				13	mg/kg		11.57	mg/kg	0.00116 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				60	mg/kg		53.4	mg/kg	0.00534 %	✓	
			205-912-4	206-44-0									
19		pyrene				49	mg/kg		43.61	mg/kg	0.00436 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				28	mg/kg		24.92	mg/kg	0.00249 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				22	mg/kg		19.58	mg/kg	0.00196 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				29	mg/kg		25.81	mg/kg	0.00258 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				11	mg/kg		9.79	mg/kg	0.000979 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				29	mg/kg		25.81	mg/kg	0.00258 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				20	mg/kg		17.8	mg/kg	0.00178 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				3.3	mg/kg		2.937	mg/kg	0.000294 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				14	mg/kg		12.46	mg/kg	0.00125 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				20	mg/kg	1.785	31.776	mg/kg	0.00318 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0856 %		

Key

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

Classification of sample: TP122/D2-14/07/2020-0.30

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

Sample details

Sample Name:
TP122/D2-14/07/2020-0.30
Sample Depth:
0.30-0.80 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22	mg/kg	1.32	25.852	mg/kg	0.00259 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.71	mg/kg	1.142	0.722	mg/kg	0.0000722 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		75	mg/kg	1.462	97.559	mg/kg	0.00976 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		57	mg/kg	1.126	57.116	mg/kg	0.00571 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	210	mg/kg		186.9	mg/kg	0.0187 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.53	mg/kg	1.353	0.638	mg/kg	0.0000638 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22	mg/kg	2.976	58.275	mg/kg	0.00583 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.32	mg/kg	2.554	0.727	mg/kg	0.0000727 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		180	mg/kg	2.774	444.418	mg/kg	0.0444 %	✓	
11	pH			PH		9.6	pH		9.6	pH	9.6 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.52	mg/kg		0.463	mg/kg	0.0000463 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.17	mg/kg		0.151	mg/kg	0.0000151 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.64	mg/kg		0.57	mg/kg	0.000057 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.6	mg/kg		0.534	mg/kg	0.0000534 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				5.8	mg/kg		5.162	mg/kg	0.000516 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.6	mg/kg		1.424	mg/kg	0.000142 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				8.6	mg/kg		7.654	mg/kg	0.000765 %	✓	
			205-912-4	206-44-0									
19		pyrene				7.2	mg/kg		6.408	mg/kg	0.000641 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				4.3	mg/kg		3.827	mg/kg	0.000383 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				3.5	mg/kg		3.115	mg/kg	0.000312 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				4.6	mg/kg		4.094	mg/kg	0.000409 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.4	mg/kg		1.246	mg/kg	0.000125 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				4.3	mg/kg		3.827	mg/kg	0.000383 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				2.8	mg/kg		2.492	mg/kg	0.000249 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.53	mg/kg		0.472	mg/kg	0.0000472 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.9	mg/kg		1.691	mg/kg	0.000169 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				22	mg/kg	1.785	34.954	mg/kg	0.0035 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0951 %		

Key

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

Classification of sample: TP126/D1-14/07/2020-0.30

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

Sample details

Sample Name:
TP126/D1-14/07/2020-0.30
Sample Depth:
0.30-0.70 m
Moisture content:
12%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		41 mg/kg	1.32	47.637 mg/kg	0.00476 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		0.74 mg/kg	1.142	0.744 mg/kg	0.0000744 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		27 mg/kg	1.462	34.727 mg/kg	0.00347 %	✓	
	/ 215-160-9 / 1308-38-9							
4	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							
5	copper { dicopper oxide; copper (I) oxide }		250 mg/kg	1.126	247.695 mg/kg	0.0248 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	1	260 mg/kg		228.8 mg/kg	0.0229 %	✓	
	082-001-00-6 / /							
7	mercury { mercury dichloride }		1.2 mg/kg	1.353	1.429 mg/kg	0.000143 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		36 mg/kg	2.976	94.288 mg/kg	0.00943 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		0.33 mg/kg	2.554	0.742 mg/kg	0.0000742 %	✓	
	034-002-00-8 / /							
10	zinc { zinc chromate }		200 mg/kg	2.774	488.25 mg/kg	0.0488 %	✓	
	024-007-00-3 / 236-878-9 / 13530-65-9							
11	pH		8.5 pH		8.5 pH	8.5 pH		
	/ / PH							
12	naphthalene		2.6 mg/kg		2.288 mg/kg	0.000229 %	✓	
	601-052-00-2 / 202-049-5 / 91-20-3							
13	acenaphthylene		0.41 mg/kg		0.361 mg/kg	0.0000361 %	✓	
	/ 205-917-1 / 208-96-8							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.98	mg/kg		0.862	mg/kg	0.0000862 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.2	mg/kg		1.056	mg/kg	0.000106 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				8.8	mg/kg		7.744	mg/kg	0.000774 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.9	mg/kg		1.672	mg/kg	0.000167 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				9	mg/kg		7.92	mg/kg	0.000792 %	✓	
			205-912-4	206-44-0									
19		pyrene				9.3	mg/kg		8.184	mg/kg	0.000818 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				4.8	mg/kg		4.224	mg/kg	0.000422 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				4.4	mg/kg		3.872	mg/kg	0.000387 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				5.6	mg/kg		4.928	mg/kg	0.000493 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.9	mg/kg		1.672	mg/kg	0.000167 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				5.2	mg/kg		4.576	mg/kg	0.000458 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				3.2	mg/kg		2.816	mg/kg	0.000282 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.66	mg/kg		0.581	mg/kg	0.0000581 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				2.6	mg/kg		2.288	mg/kg	0.000229 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	45.558	mg/kg	0.00456 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.125 %		

Key

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

Classification of sample: TP123/D2-14/07/2020-0.30

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

Sample details

Sample Name:
TP123/D2-14/07/2020-0.30
Sample Depth:
0.30-0.90 m
Moisture content:
13%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		34	mg/kg	1.32	39.055	mg/kg	0.00391 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.33	mg/kg	1.142	0.328	mg/kg	0.0000328 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20	mg/kg	1.462	25.431	mg/kg	0.00254 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		78	mg/kg	1.126	76.403	mg/kg	0.00764 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	230	mg/kg		200.1	mg/kg	0.02 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.73	mg/kg	1.353	0.86	mg/kg	0.000086 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23	mg/kg	2.976	59.555	mg/kg	0.00596 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		89	mg/kg	2.774	214.802	mg/kg	0.0215 %	✓	
11	pH			PH		10.6	pH		10.6	pH	10.6 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.36	mg/kg		0.313	mg/kg	0.0000313 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.18	mg/kg		0.157	mg/kg	0.0000157 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.59	mg/kg		0.513	mg/kg	0.0000513 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.44	mg/kg		0.383	mg/kg	0.0000383 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				6.3	mg/kg		5.481	mg/kg	0.000548 %	✓	
			201-581-5	85-01-8									
17		anthracene				1.4	mg/kg		1.218	mg/kg	0.000122 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				9.9	mg/kg		8.613	mg/kg	0.000861 %	✓	
			205-912-4	206-44-0									
19		pyrene				9.1	mg/kg		7.917	mg/kg	0.000792 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				4.4	mg/kg		3.828	mg/kg	0.000383 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				4.1	mg/kg		3.567	mg/kg	0.000357 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				5.1	mg/kg		4.437	mg/kg	0.000444 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.6	mg/kg		1.392	mg/kg	0.000139 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				5.1	mg/kg		4.437	mg/kg	0.000444 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				3.5	mg/kg		3.045	mg/kg	0.000305 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.6	mg/kg		0.522	mg/kg	0.0000522 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				2.3	mg/kg		2.001	mg/kg	0.0002 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	45.04	mg/kg	0.0045 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0711 %		

Key

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

Classification of sample: TP121/D1-14/07/2020-0.20

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

Sample details

Sample Name:
TP121/D1-14/07/2020-0.20
Sample Depth:
0.20-1.10 m
Moisture content:
11%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		16 mg/kg	1.32	18.801 mg/kg	0.00188 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		0.62 mg/kg	3.22	1.777 mg/kg	0.000178 %	✓	
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.27 mg/kg	1.142	0.275 mg/kg	0.0000275 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		16 mg/kg	1.462	20.813 mg/kg	0.00208 %	✓	
	/ 215-160-9 / 1308-38-9							
5	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							
6	copper { dicopper oxide; copper (I) oxide }		32 mg/kg	1.126	32.065 mg/kg	0.00321 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	1	130 mg/kg		115.7 mg/kg	0.0116 %	✓	
	082-001-00-6 / /							
8	mercury { mercury dichloride }		0.53 mg/kg	1.353	0.638 mg/kg	0.0000638 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		18 mg/kg	2.976	47.68 mg/kg	0.00477 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		0.41 mg/kg	2.554	0.932 mg/kg	0.0000932 %	✓	
	034-002-00-8 / /							
11	zinc { zinc chromate }		55 mg/kg	2.774	135.794 mg/kg	0.0136 %	✓	
	024-007-00-3 / 236-878-9 / 13530-65-9							
12	TPH (C6 to C40) petroleum group		10 mg/kg		8.9 mg/kg	0.00089 %	✓	
	/ / TPH							
13	confirm TPH has NOT arisen from diesel or petrol		☑					
	/ /							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
15		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
20		pH				10.4	pH		10.4	pH	10.4 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				1.7	mg/kg		1.513	mg/kg	0.000151 %	✓	
			201-581-5	85-01-8									
26		anthracene				0.43	mg/kg		0.383	mg/kg	0.0000383 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				2.6	mg/kg		2.314	mg/kg	0.000231 %	✓	
			205-912-4	206-44-0									
28		pyrene				2.6	mg/kg		2.314	mg/kg	0.000231 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				1.6	mg/kg		1.424	mg/kg	0.000142 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				1.2	mg/kg		1.068	mg/kg	0.000107 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				1.8	mg/kg		1.602	mg/kg	0.00016 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.52	mg/kg		0.463	mg/kg	0.0000463 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				1.7	mg/kg		1.513	mg/kg	0.000151 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				1.2	mg/kg		1.068	mg/kg	0.000107 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.27	mg/kg		0.24	mg/kg	0.000024 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				1	mg/kg		0.89	mg/kg	0.000089 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	28.599	mg/kg	0.00286 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0429 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00089%)

Classification of sample: TP129/D1-14/07/2020-0.10

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

Sample details

Sample Name:
TP129/D1-14/07/2020-0.10
Sample Depth:
0.10-1.00 m
Moisture content:
16%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		37	mg/kg	1.32	41.036	mg/kg	0.0041 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.34	mg/kg	1.142	0.326	mg/kg	0.0000326 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20	mg/kg	1.462	24.554	mg/kg	0.00246 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		**<LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		140	mg/kg	1.126	132.404	mg/kg	0.0132 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	170	mg/kg		142.8	mg/kg	0.0143 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.7	mg/kg	1.353	0.796	mg/kg	0.0000796 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		58	mg/kg	2.976	145.004	mg/kg	0.0145 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.6	mg/kg	2.554	3.432	mg/kg	0.000343 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		82	mg/kg	2.774	191.083	mg/kg	0.0191 %	✓	
11		pH			PH		8.4	pH		8.4	pH	8.4 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		1.2	mg/kg		1.008	mg/kg	0.000101 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.55	mg/kg		0.462	mg/kg	0.0000462 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				1	mg/kg		0.84	mg/kg	0.000084 %	✓	
			201-469-6	83-32-9									
15		fluorene				1	mg/kg		0.84	mg/kg	0.000084 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				9.4	mg/kg		7.896	mg/kg	0.00079 %	✓	
			201-581-5	85-01-8									
17		anthracene				2.6	mg/kg		2.184	mg/kg	0.000218 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				14	mg/kg		11.76	mg/kg	0.00118 %	✓	
			205-912-4	206-44-0									
19		pyrene				16	mg/kg		13.44	mg/kg	0.00134 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				14	mg/kg		11.76	mg/kg	0.00118 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				12	mg/kg		10.08	mg/kg	0.00101 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				21	mg/kg		17.64	mg/kg	0.00176 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				7.8	mg/kg		6.552	mg/kg	0.000655 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				25	mg/kg		21	mg/kg	0.0021 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				18	mg/kg		15.12	mg/kg	0.00151 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				3.9	mg/kg		3.276	mg/kg	0.000328 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				16	mg/kg		13.44	mg/kg	0.00134 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				56	mg/kg	1.785	83.975	mg/kg	0.0084 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0904 %		

Key

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

Classification of sample: TP133/D1-14/07/2020-0.00

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

Sample details

Sample Name:
TP133/D1-14/07/2020-0.00
Sample Depth:
0.00-1.00 m
Moisture content:
16%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	15.527	mg/kg	0.00155 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.66	mg/kg	1.142	0.633	mg/kg	0.0000633 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29	mg/kg	1.462	35.603	mg/kg	0.00356 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		**<LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		51	mg/kg	1.126	48.233	mg/kg	0.00482 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	170	mg/kg		142.8	mg/kg	0.0143 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.49	mg/kg	1.353	0.557	mg/kg	0.0000557 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23	mg/kg	2.976	57.501	mg/kg	0.00575 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.25	mg/kg	2.554	0.536	mg/kg	0.0000536 %	✓	
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110	mg/kg	2.774	256.331	mg/kg	0.0256 %	✓	
11		pH			PH		8.4	pH		8.4	pH	8.4 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		1.3	mg/kg		1.092	mg/kg	0.000109 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.47	mg/kg		0.395	mg/kg	0.0000395 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				1	mg/kg		0.84	mg/kg	0.000084 %	✓	
			201-469-6	83-32-9									
15		fluorene				1	mg/kg		0.84	mg/kg	0.000084 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				9.7	mg/kg		8.148	mg/kg	0.000815 %	✓	
			201-581-5	85-01-8									
17		anthracene				2	mg/kg		1.68	mg/kg	0.000168 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				14	mg/kg		11.76	mg/kg	0.00118 %	✓	
			205-912-4	206-44-0									
19		pyrene				13	mg/kg		10.92	mg/kg	0.00109 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				6.9	mg/kg		5.796	mg/kg	0.00058 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				5.9	mg/kg		4.956	mg/kg	0.000496 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				7.9	mg/kg		6.636	mg/kg	0.000664 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				2.6	mg/kg		2.184	mg/kg	0.000218 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				7.6	mg/kg		6.384	mg/kg	0.000638 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				5.8	mg/kg		4.872	mg/kg	0.000487 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.73	mg/kg		0.613	mg/kg	0.0000613 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				4.2	mg/kg		3.528	mg/kg	0.000353 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				25	mg/kg	1.785	37.489	mg/kg	0.00375 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0667 %		

Key

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

Classification of sample: WS15 D1-1031984-13/07/2020-0.0

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

Sample details

Sample Name:
WS15 D1-1031984-13/07/2020-0.0
Sample Depth:
0.0-0.7 m
Moisture content:
3.9%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 3.9% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	22.839	mg/kg	0.00228 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2	mg/kg	1.142	1.317	mg/kg	0.000132 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		4.4	mg/kg	1.462	6.18	mg/kg	0.000618 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		6.8	mg/kg	1.126	7.357	mg/kg	0.000736 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	29	mg/kg		27.869	mg/kg	0.00279 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11	mg/kg	2.976	31.462	mg/kg	0.00315 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<LOD
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		45	mg/kg	2.774	119.968	mg/kg	0.012 %	✓	
11		pH			PH		8.4	pH		8.4	pH	8.4 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
13		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-695-5	86-73-7									
16		phenanthrene				0.16	mg/kg		0.154	mg/kg	0.0000154 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.12	mg/kg		0.115	mg/kg	0.0000115 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				0.26	mg/kg		0.25	mg/kg	0.000025 %	✓	
			205-912-4	206-44-0									
19		pyrene				0.25	mg/kg		0.24	mg/kg	0.000024 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.18	mg/kg		0.173	mg/kg	0.0000173 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.2	mg/kg		0.192	mg/kg	0.0000192 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				0.26	mg/kg		0.25	mg/kg	0.000025 %	✓	
		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				0.18	mg/kg		0.173	mg/kg	0.0000173 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.2	mg/kg		0.192	mg/kg	0.0000192 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.12	mg/kg		0.115	mg/kg	0.0000115 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				0.11	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				5.5	mg/kg	1.785	9.436	mg/kg	0.000944 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.023 %		

Key

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

Classification of sample: WS15 D2-1031985-13/07/2020-0.8

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

Sample details

Sample Name:
WS15 D2-1031985-13/07/2020-0.8
Sample Depth:
0.8-1.0 m
Moisture content:
9.6%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.6% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		pH		PH		8.3 pH		8.3 pH	8.3 pH		
								Total:	0%		

Key

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

Classification of sample: WS17 D1-1031986-13/07/2020-0.6

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

Sample details

Sample Name:
WS17 D1-1031986-13/07/2020-0.6
Sample Depth:
0.6-1.0 m
Moisture content:
18%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		39	mg/kg	1.32	42.224	mg/kg	0.00422 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.54	mg/kg	1.142	0.506	mg/kg	0.0000506 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16	mg/kg	1.462	19.176	mg/kg	0.00192 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		130	mg/kg	1.126	120.02	mg/kg	0.012 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	430	mg/kg		352.6	mg/kg	0.0353 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.6	mg/kg	1.353	1.776	mg/kg	0.000178 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		31	mg/kg	2.976	75.657	mg/kg	0.00757 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.6	mg/kg	2.554	1.256	mg/kg	0.000126 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		250	mg/kg	2.774	568.7	mg/kg	0.0569 %	✓	
11	pH			PH		8.1	pH		8.1	pH	8.1 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			201-695-5	86-73-7									
16		phenanthrene				<0.1	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									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				38	mg/kg	1.785	55.626	mg/kg	0.00556 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.124 %		

Key

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

Classification of sample: WS18 D2-1031991-13/07/2020-0.4

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

Sample details

Sample Name:
WS18 D2-1031991-13/07/2020-0.4
Sample Depth:
0.4-1.0 m
Moisture content:
14%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	20.439	mg/kg	0.00204 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.29	mg/kg	1.142	0.285	mg/kg	0.0000285 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	27.653	mg/kg	0.00277 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		48	mg/kg	1.126	46.477	mg/kg	0.00465 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	300	mg/kg		258	mg/kg	0.0258 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.4	mg/kg	1.353	0.466	mg/kg	0.0000466 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23	mg/kg	2.976	58.871	mg/kg	0.00589 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.36	mg/kg	2.554	0.791	mg/kg	0.0000791 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		150	mg/kg	2.774	357.865	mg/kg	0.0358 %	✓	
11	pH			PH		8.1	pH		8.1	pH	8.1 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.69	mg/kg		0.593	mg/kg	0.0000593 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.29	mg/kg		0.249	mg/kg	0.0000249 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				1.5	mg/kg		1.29	mg/kg	0.000129 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.4	mg/kg		1.204	mg/kg	0.00012 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				12	mg/kg		10.32	mg/kg	0.00103 %	✓	
			201-581-5	85-01-8									
17		anthracene				3.5	mg/kg		3.01	mg/kg	0.000301 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				19	mg/kg		16.34	mg/kg	0.00163 %	✓	
			205-912-4	206-44-0									
19		pyrene				17	mg/kg		14.62	mg/kg	0.00146 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				8.5	mg/kg		7.31	mg/kg	0.000731 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				7.7	mg/kg		6.622	mg/kg	0.000662 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				10	mg/kg		8.6	mg/kg	0.00086 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				3.9	mg/kg		3.354	mg/kg	0.000335 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				9.2	mg/kg		7.912	mg/kg	0.000791 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				6.6	mg/kg		5.676	mg/kg	0.000568 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				1.1	mg/kg		0.946	mg/kg	0.0000946 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				4.7	mg/kg		4.042	mg/kg	0.000404 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	39.917	mg/kg	0.00399 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0904 %		

Key

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

Classification of sample: WS16 D2-1031995-13/07/2020-1.5

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

Sample details

Sample Name:
WS16 D2-1031995-13/07/2020-1.5
Sample Depth:
1.5-1.5 m
Moisture content:
26%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 26% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		140 mg/kg	1.32	136.786 mg/kg	0.0137 %	✓	
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		0.5 mg/kg	3.22	1.191 mg/kg	0.000119 %	✓	
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.68 mg/kg	1.142	0.575 mg/kg	0.0000575 %	✓	
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		33 mg/kg	1.462	35.691 mg/kg	0.00357 %	✓	
	/ 215-160-9 / 1308-38-9							
5	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							
6	copper { dicopper oxide; copper (I) oxide }		210 mg/kg	1.126	174.963 mg/kg	0.0175 %	✓	
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	1	600 mg/kg		444 mg/kg	0.0444 %	✓	
	082-001-00-6 / /							
8	mercury { mercury dichloride }		11 mg/kg	1.353	11.017 mg/kg	0.0011 %	✓	
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		88 mg/kg	2.976	193.814 mg/kg	0.0194 %	✓	
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1.4 mg/kg	2.554	2.646 mg/kg	0.000265 %	✓	
	034-002-00-8 / /							
11	zinc { zinc chromate }		420 mg/kg	2.774	862.205 mg/kg	0.0862 %	✓	
	024-007-00-3 / 236-878-9 / 13530-65-9							
12	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
	/ / TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<**LOD**
	603-181-00-X / 216-653-1 / 1634-04-4							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				5.2	mg/kg	1.884	7.25	mg/kg	0.000725 %	✓	
		006-007-00-5											
19		pH				7.4	pH		7.4	pH	7.4 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
24		phenanthrene				1.5	mg/kg		1.11	mg/kg	0.000111 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.34	mg/kg		0.252	mg/kg	0.0000252 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				2.5	mg/kg		1.85	mg/kg	0.000185 %	✓	
			205-912-4	206-44-0									
27		pyrene				2.7	mg/kg		1.998	mg/kg	0.0002 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				1.6	mg/kg		1.184	mg/kg	0.000118 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				1.5	mg/kg		1.11	mg/kg	0.000111 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				2.4	mg/kg		1.776	mg/kg	0.000178 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.72	mg/kg		0.533	mg/kg	0.0000533 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				2	mg/kg		1.48	mg/kg	0.000148 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				1.7	mg/kg		1.258	mg/kg	0.000126 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.36	mg/kg		0.266	mg/kg	0.0000266 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				1.3	mg/kg		0.962	mg/kg	0.0000962 %	✓	
			205-883-8	191-24-2									
36		vanadium { divanadium pentaoxide; vanadium pentoxide }				97	mg/kg	1.785	128.141	mg/kg	0.0128 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.202 %		

Key

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

Classification of sample: WS14B D1-1031998-13/07/2020-0.4

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

Sample details

Sample Name:
WS14B D1-1031998-13/07/2020-0.4
Sample Depth:
0.4-1.0 m
Moisture content:
3.8%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 3.8% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		42	mg/kg	1.32	53.346	mg/kg	0.00533 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.63	mg/kg	1.142	0.692	mg/kg	0.0000692 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33	mg/kg	1.462	46.399	mg/kg	0.00464 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		77	mg/kg	1.126	83.399	mg/kg	0.00834 %	✓	
6		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	470	mg/kg		452.14	mg/kg	0.0452 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.87	mg/kg	1.353	1.133	mg/kg	0.000113 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32	mg/kg	2.976	91.621	mg/kg	0.00916 %	✓	
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		200	mg/kg	2.774	533.746	mg/kg	0.0534 %	✓	
11		pH			PH		10.7	pH		10.7	pH	10.7 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		0.27	mg/kg		0.26	mg/kg	0.000026 %	✓	
13		acenaphthylene		205-917-1	208-96-8		0.12	mg/kg		0.115	mg/kg	0.0000115 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.25	mg/kg		0.241	mg/kg	0.0000241 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.16	mg/kg		0.154	mg/kg	0.0000154 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				2.2	mg/kg		2.116	mg/kg	0.000212 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.5	mg/kg		0.481	mg/kg	0.0000481 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				4.2	mg/kg		4.04	mg/kg	0.000404 %	✓	
			205-912-4	206-44-0									
19		pyrene				4	mg/kg		3.848	mg/kg	0.000385 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				2.2	mg/kg		2.116	mg/kg	0.000212 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				2.1	mg/kg		2.02	mg/kg	0.000202 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				3.2	mg/kg		3.078	mg/kg	0.000308 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.1	mg/kg		1.058	mg/kg	0.000106 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				2.9	mg/kg		2.79	mg/kg	0.000279 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				2.3	mg/kg		2.213	mg/kg	0.000221 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.39	mg/kg		0.375	mg/kg	0.0000375 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.6	mg/kg		1.539	mg/kg	0.000154 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				37	mg/kg	1.785	63.542	mg/kg	0.00635 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.135 %		

Key

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

Classification of sample: WS14B D2-1031999-13/07/2020-1.6

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
WS14B D2-1031999-13/07/2020-1.6
Sample Depth:
1.6-2.0 m
Moisture content:
18%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.82%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.82%)

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		51	mg/kg	1.32	55.216	mg/kg	0.00552 %	✓	
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.8	mg/kg	3.22	4.753	mg/kg	0.000475 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.77	mg/kg	1.142	0.721	mg/kg	0.0000721 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	28.763	mg/kg	0.00288 %	✓	
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		340	mg/kg	1.126	313.898	mg/kg	0.0314 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	500	mg/kg		410	mg/kg	0.041 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		2.2	mg/kg	1.353	2.442	mg/kg	0.000244 %	✓	
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39	mg/kg	2.976	95.181	mg/kg	0.00952 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.75	mg/kg	2.554	1.57	mg/kg	0.000157 %	✓	
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		280	mg/kg	2.774	636.944	mg/kg	0.0637 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		10000	mg/kg		8200	mg/kg	0.82 %	✓	
13	confirm TPH has NOT arisen from diesel or petrol					☑							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
17	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
18	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				1.5	mg/kg	1.884	2.317	mg/kg	0.000232 %	✓	
20	pH			PH		8.4	pH		8.4	pH	8.4 pH		
21	naphthalene	601-052-00-2	202-049-5	91-20-3		13	mg/kg		10.66	mg/kg	0.00107 %	✓	
22	acenaphthylene		205-917-1	208-96-8		6	mg/kg		4.92	mg/kg	0.000492 %	✓	
23	acenaphthene		201-469-6	83-32-9		110	mg/kg		90.2	mg/kg	0.00902 %	✓	
24	fluorene		201-695-5	86-73-7		66	mg/kg		54.12	mg/kg	0.00541 %	✓	
25	phenanthrene		201-581-5	85-01-8		450	mg/kg		369	mg/kg	0.0369 %	✓	
26	anthracene		204-371-1	120-12-7		120	mg/kg		98.4	mg/kg	0.00984 %	✓	
27	fluoranthene		205-912-4	206-44-0		510	mg/kg		418.2	mg/kg	0.0418 %	✓	
28	pyrene		204-927-3	129-00-0		430	mg/kg		352.6	mg/kg	0.0353 %	✓	
29	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		190	mg/kg		155.8	mg/kg	0.0156 %	✓	
30	chrysene	601-048-00-0	205-923-4	218-01-9		190	mg/kg		155.8	mg/kg	0.0156 %	✓	
31	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		210	mg/kg		172.2	mg/kg	0.0172 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
32		benzo[k]fluoranthene				79	mg/kg		64.78	mg/kg	0.00648 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				170	mg/kg		139.4	mg/kg	0.0139 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				86	mg/kg		70.52	mg/kg	0.00705 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				23	mg/kg		18.86	mg/kg	0.00189 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				100	mg/kg		82	mg/kg	0.0082 %	✓	
			205-883-8	191-24-2									
37		vanadium { divanadium pentaoxide; vanadium pentoxide }				38	mg/kg	1.785	55.626	mg/kg	0.00556 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	1.207 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.82%)

Classification of sample: WS14B D3-1032000-13/07/2020-4.0

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
WS14B D3-1032000-13/07/2020-4.0
Sample Depth:
4.0-4.5 m
Moisture content:
26%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.192%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.192%)

Determinands

Moisture content: 26% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		2600	mg/kg		1924	mg/kg	0.192 %	✓	
2		confirm TPH has NOT arisen from diesel or petrol					☑							
3		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
4		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
5		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
7		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.192 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.192%)

Classification of sample: WS10 D1-1032001-13/07/2020-0.0

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

Sample details

Sample Name:
WS10 D1-1032001-13/07/2020-0.0
Sample Depth:
0.0-0.3 m
Moisture content:
19%
(wet weight correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	19.25	mg/kg	0.00193 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.5	mg/kg	1.142	1.388	mg/kg	0.000139 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		290	mg/kg	1.462	343.319	mg/kg	0.0343 %	✓	
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		74	mg/kg	1.126	67.486	mg/kg	0.00675 %	✓	
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	250	mg/kg		202.5	mg/kg	0.0202 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.76	mg/kg	1.353	0.833	mg/kg	0.0000833 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22	mg/kg	2.976	53.037	mg/kg	0.0053 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.58	mg/kg	2.554	1.2	mg/kg	0.00012 %	✓	
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		190	mg/kg	2.774	426.941	mg/kg	0.0427 %	✓	
11	pH			PH		7.6	pH		7.6	pH	7.6 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.76	mg/kg		0.616	mg/kg	0.0000616 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.12	mg/kg		0.0972	mg/kg	0.00000972 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				2.8	mg/kg		2.268	mg/kg	0.000227 %	✓	
			201-469-6	83-32-9									
15		fluorene				1.9	mg/kg		1.539	mg/kg	0.000154 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				11	mg/kg		8.91	mg/kg	0.000891 %	✓	
			201-581-5	85-01-8									
17		anthracene				2.9	mg/kg		2.349	mg/kg	0.000235 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				13	mg/kg		10.53	mg/kg	0.00105 %	✓	
			205-912-4	206-44-0									
19		pyrene				11	mg/kg		8.91	mg/kg	0.000891 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				5.7	mg/kg		4.617	mg/kg	0.000462 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				5.3	mg/kg		4.293	mg/kg	0.000429 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				6.8	mg/kg		5.508	mg/kg	0.000551 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				2.3	mg/kg		1.863	mg/kg	0.000186 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				5.7	mg/kg		4.617	mg/kg	0.000462 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				4	mg/kg		3.24	mg/kg	0.000324 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.74	mg/kg		0.599	mg/kg	0.0000599 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				3.1	mg/kg		2.511	mg/kg	0.000251 %	✓	
			205-883-8	191-24-2									
28		vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	26.028	mg/kg	0.0026 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.121 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

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

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

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: 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

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

CLP index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers many simple lead compounds to be Carcinogenic category 2
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: 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 Jul 2015
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 Aug 2015
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 Aug 2015
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 Jul 2015
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 Aug 2015
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 Aug 2015
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 Aug 2015
Hazard Statements: Carc. 2 H351

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

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

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

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

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **confirm TPH has NOT arisen from diesel or petrol**

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium(VI) 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)

copper {dicopper oxide; copper (I) oxide}

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

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

Worst case compound based on absence of CrVI and assumed metal oxides from a combustion, ash based source.

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {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)

zinc {zinc chromate}

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

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case/most likely scenario

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.224.4427.8663 (11 Aug 2020)
HazWasteOnline Database: 2020.224.4427.8663 (11 Aug 2020)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of 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
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
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

Appendix J

JIWG Output Sheets

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Decision Support Tool for Receptor Risk Ranking

Stage 1

Hazard Identification		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Clearly identifiable insulating board	2
Extent of degradation of ACMs	Intact (Very good condition ACM/ACM fragments	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Asbestos fibre type	Chrysotile alone	0
Sub-total		3
Hazard ranking		Very Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Trace quantities - <0.0001 to <0.001 %wt/wt	0
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Activity type and effect on deterioration of ACMs	Low disturbance, minimal deterioration expected	2
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		7
Exposure ranking		Low

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Stage 3

Pathway and Receptor Sensitivity		Score	
Receptor category	Residential	No score required	
Age of Receptor	Infant (under 5)	4	
Duration of exposure/site occupancy	< 1 hour in any single day (e.g. frequent but short exposure event)	1	
Receptor ranking		5	Medium
Combined hazard, exposure and receptor ranking			Low
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4	
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D	
Pathway ranking		4D	Medium
Overall ranking			Low

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Project Reference	LKC 20 1120

Site Name	Collyhurst Village
Client	Far East Consortium International Ltd

Run by	HM
Date	27th August 2020
Reviewed by	PQ

Characterisation of scenario being evaluated	Chrysotile loose fibres

Interpretation of scenario ranking by DST	Low risk due to type of ACM and LOD concentrations.

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JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	LKC 20 1120
Site Name	Collyhurst Village
Client	Far East Consortium
Run by	HM
Date	27th August 2020
Scenario details	

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Clearly identifiable insulating board	2
Extent of degradation of ACMs at outset of work	Intact (Very good condition ACM/ACM fragments	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - >0.1 %wt/wt	4
Sub-total		**8**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking **Low**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Exposure Factors

		Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.001 fibres/ml	0
Anticipated duration of exposure to asbestos	< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)	1
Activity type and effect on deterioration of ACMs during work	Sampling, manual or mechanical (no or minimal deterioration expected)	0
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Sand	2
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low	2
Sub-total		**5**
Exposure ranking		Very low
Combined hazard and exposure ranking	**13**	Low

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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Appendix J

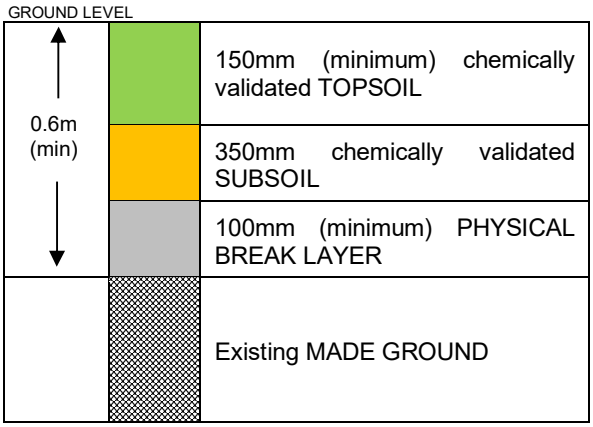
Environmental Cover System Construction

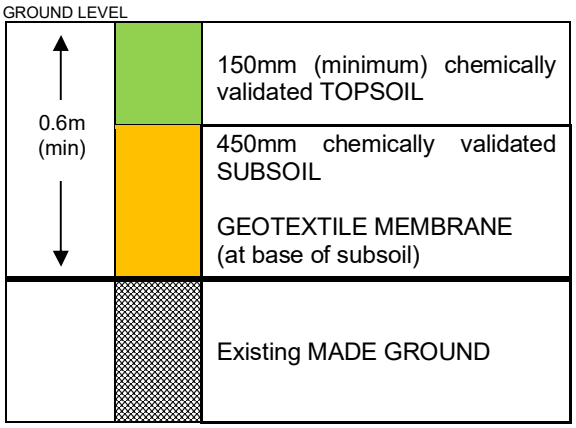
Private Gardens
Shared Landscaping

PRIVATE BACK GARDENS:

Requires 600mm environmental cover system.

Either (physical break layer) Or (geotextile membrane)

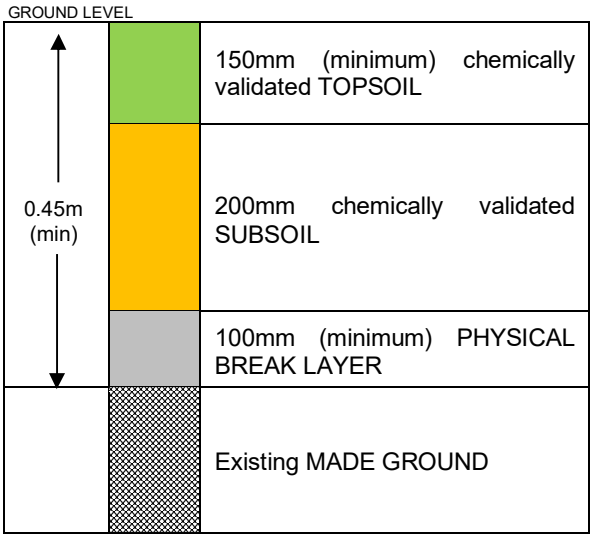


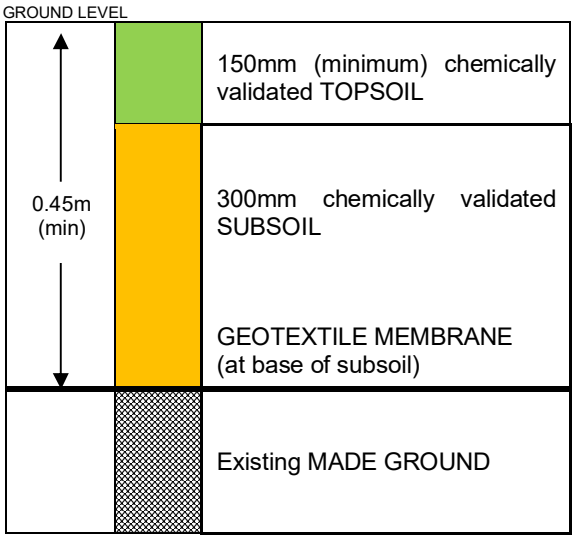


PRIVATE FRONT GARDENS / SHARED LANDSCAPING:

Requires 450mm environmental cover system.

Either (physical break layer) Or (geotextile membrane)





Hardstood Areas – No Remediation Required

From current data and current site layout. No specific remediation required in landscaped area around apartment block, small verges around duplex buildings and POS area. Therefore, nominal 150mm topsoil cover

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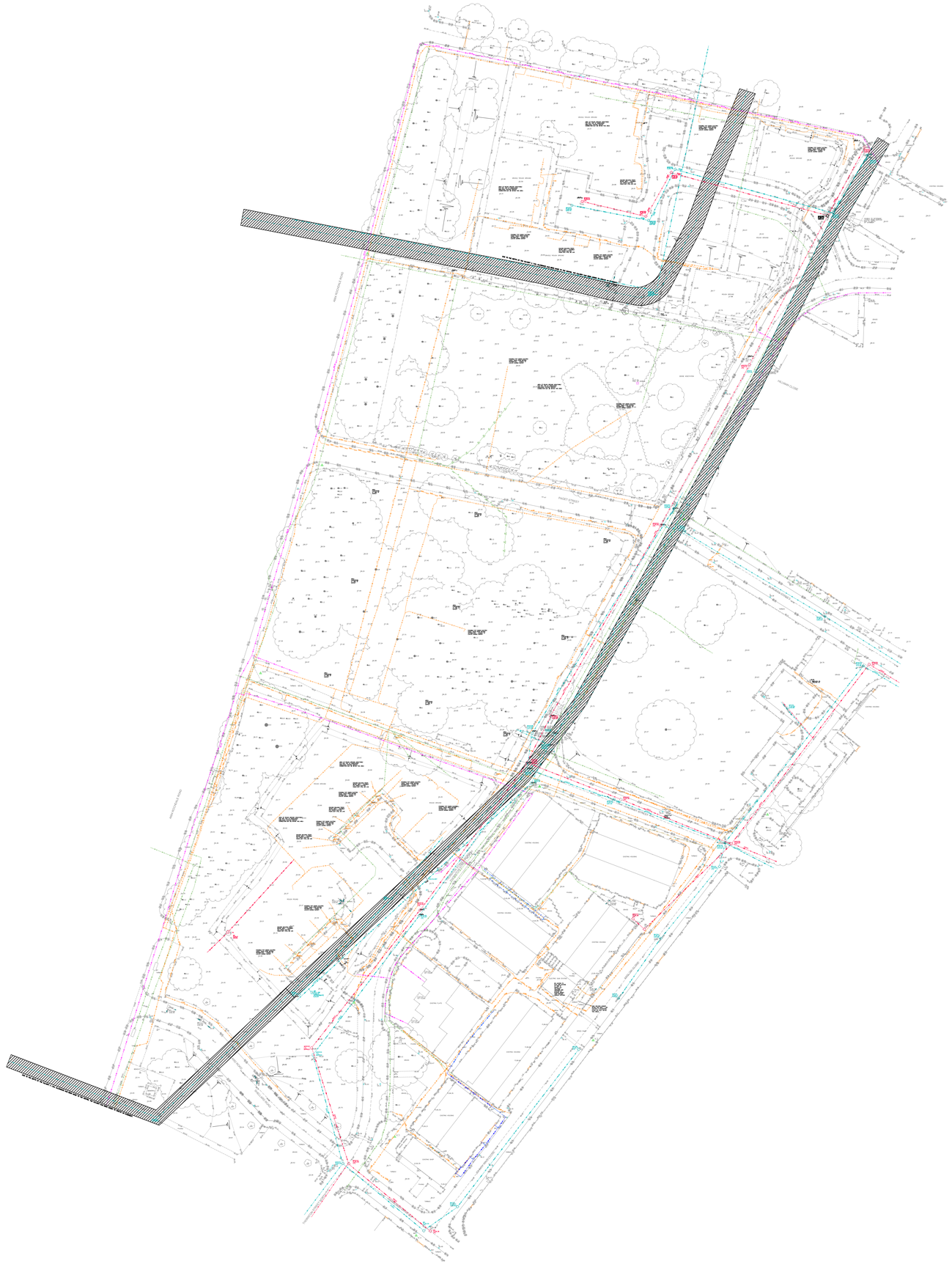
- Contaminated Land
- Flood Risk and Drainage
- Asbestos
- Invasive Species
- Land Remediation
- Project Management
- Land Drilling



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PLAN GRID NORTH

File Name: Collyhurst Drainage and Utils Layer.dwg

LEGEND

AV	AIR VALVE
BC	BOUNDARY COVER
CB	CONTROL BOX
CBH	CONTROL BOX HOLE
COM	COMMUNICATIONS COVER
CV	CONTROL VALVE
DR	DRAINAGE CHANNEL
DP	DOWN PIPE
EB	ELEC BOX
EIC	ELECT INSPECTION COVER
ELB	ELECTRIC BOX
EP	ELECTRIC
EP	ELECTRICITY POLE
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
G	GULLY
GLT	GROUND LIGHT
GP	GAS POST
GSV	GAS VALVE
IC	INSPECTION COVER
MH	MANHOLE
OU	KERB OUTLET
LP	LAMP POST
MP	MARKER POST
MK	MARKER
OF	OUTFALL PIPE
PM	PARKING
PP	METROL PUMP
RC	RODDING EYE
RWP	RAINWATER PIPE
SIG	SIGNAL HEAD
SV	STOP VALVE
TCB	TELEPHONE CALL BOX
TP	TELEGRAPH POST
TLB	TRAFFIC LIGHT BOX
TP	TELEGRAPH POLE
TR	TRIAL HOLE
WC	WATER OUTLET
WST	WATER STOP TAP
WSV	WATER STOP VALVE
EOT	END OF TRACE
LOA	UNABLE TO ACCESS AREA
LOL	UNABLE TO LIFT
LTS	UNABLE TO SONDE
NFF	NO FURTHER TRACE
S.O.	SIGNAL LOST
BLK	BLOCKED
GPR	BACKDROP GPR CONTACTS
BD	BACKDROP INVE
VUP	VG UPVC PIPE
SP	SOIL PIPE
	EXIT SYMBOL

BT	BT
CABLE DUCT	CABLE DUCT
CATV	CATV
TELECOMS	TELECOMS
ELECTRIC STRIP	ELECTRIC STRIP
ELECTRIC	ELECTRIC
FIBRE OPTICS	FIBRE OPTICS
FOUL	FOUL
GAS PROTECTION LINE	GAS PROTECTION LINE
MAINS GAS	MAINS GAS
MAINS WATER	MAINS WATER
SEWER AIR	SEWER AIR
SEWER FM	SEWER FM
SEWER VB	SEWER VB
UNIDENTIFIED TRACE	UNIDENTIFIED TRACE
UNIDENTIFIED CABLE	UNIDENTIFIED CABLE
UNIDENTIFIED PIPE	UNIDENTIFIED PIPE
SERVICE DETECTION CABLE	SERVICE DETECTION CABLE
SURVEY BOUNDARY	SURVEY BOUNDARY

FROM STATUTORY AUTHORITY PLANS

BT	BT
CABLE DUCT	CABLE DUCT
CATV	CATV
OCTV	OCTV
TELECOMS	TELECOMS
ELECTRIC	ELECTRIC
MAINS GAS	MAINS GAS
MAINS WATER	MAINS WATER
SEWER VB	SEWER VB
SEWER FM	SEWER FM
SEWER SW	SEWER SW
FIBRE OPTICS	FIBRE OPTICS

NOTES:

All levels relate to O.S (Newlyn) Datum. Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

Services shown as 'From Statutory Authority Plans' line styles are taken from Statutory Records plans supplied by the relevant regional authority. These services were not located and are shown for indicative purposes only.

DISCLAIMER:

At Layer Surveys staff use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub-surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of Layer Surveys. Therefore Layer Surveys

cannot guarantee that all utilities present on site have been located. It is the responsibility of the Client to consult regional authority records and undertake trial digs where appropriate.

Where similar services run in close proximity it may be impossible to separately trace individual services as the trace signal can experience interference. In such cases, services will be shown as a single, unnotated line. The displayed depth will refer to the shallowest detected utility.

Successful tracing of non-conductive materials may be limited. Drainage gulleys are dye tested where possible to prove connectivity but it is not always possible to introduce the sonde due to narrow pipe sizes and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe at 2m deep may be accurate to +/-200mm) but this cannot be guaranteed. Depths shown usually refer to the top of the service. Gravity sewer and drain depths are usually to invert (base of drainage channel) unless otherwise stated.

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Excavation in the vicinity of services shown should be carried out with due diligence (Ref. HSG47).

SHEET LAYOUT

0 10m 20m 40m 60m 80m

SCALE BAR

REV	DATE	DESCRIPTION

Layer Surveys Ltd
See the Complete Picture

Client

Project Title
Collyhurst
Manchester

Surveyed	Drawn	Checked
C.T	G.B	D.W

Scale	Date	Drawing Ref.	No.	Size	Rev
1:500	May 20	Lay0315	01	A0	01

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PLAN GRID NORTH

File Name: Coltyhurst Drainage and Utils Layer.dwg

LEGEND

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CP	CONTROL BOX VENT
COM	COMMUNICATIONS COVER
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DI	DRAINAGE CHANNEL
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IC	INSPECTION COVER
LP	LAMP POST
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MH	MANHOLE
MK	MARKER
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PP	POWER POST
PU	PETROL PUMP
RG	RODDING EYE
RWP	RAINWATER PIPE
SP	SOIL VENT PIPE
SV	STOP VALVE
TCB	TELEPHONE CALL BOX
TP	TELEGRAPH POLE
TLB	TRAFFIC LIGHT BOX
TP	TELEGRAPH POLE
WC	WATER COURSE
WO	WATER OUTLET
WST	WATER STOP TAP
WSV	WATER STOP VALVE
EOT	END OF TRACE
NAD	NO ACCESS OR AREA
U/S	UNABLE TO LIFT
U/S	UNABLE TO SONDE
S.T.	SURVEY TRACE
S.S.	SIGNAL LOSS
BLK	BLOCKED
GPR	BOREHOLE GPR CONTACTS
BD	BACKDROP PIPE
SUP	TO SUPPLY PIPE
INP	TO INLET PIPE
⊔	EXIT SYMBOL

BT	BT
DUCT	CABLE DUCT
CATV	CABLE TV
OCTV	OCTV
TELECOM	TELECOMS
ELECTRIC STRIP	ELECTRIC
FIBRE OPTICS	FIBRE OPTICS
PL	PIPE LINE
GAS	GAS
LANE	GAS SUPPLY LOW LANE
MAINS GAS	MAINS GAS
MAINS WATER	MAINS WATER
SEWER	SEWER
SEWER FW	SEWER FW
TRACE	TRACE
UNIDENTIFIED CABLE	UNIDENTIFIED CABLE
UNIDENTIFIED TRACE	UNIDENTIFIED TRACE
UNIDENTIFIED PIPE	UNIDENTIFIED PIPE
SERVICE DETECTION CABLE	SERVICE DETECTION CABLE
SURVEY BOUNDARY	SURVEY BOUNDARY

FROM STATUTORY AUTHORITY PLANS

BT	BT
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CATV	CATV
OCTV	OCTV
TELECOMS	TELECOMS
ELECTRIC	ELECTRIC
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SEWER CW	SEWER CW
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FIBRE OPTICS	FIBRE OPTICS

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0 10m 20m 40m 60m 80m
SCALE BAR

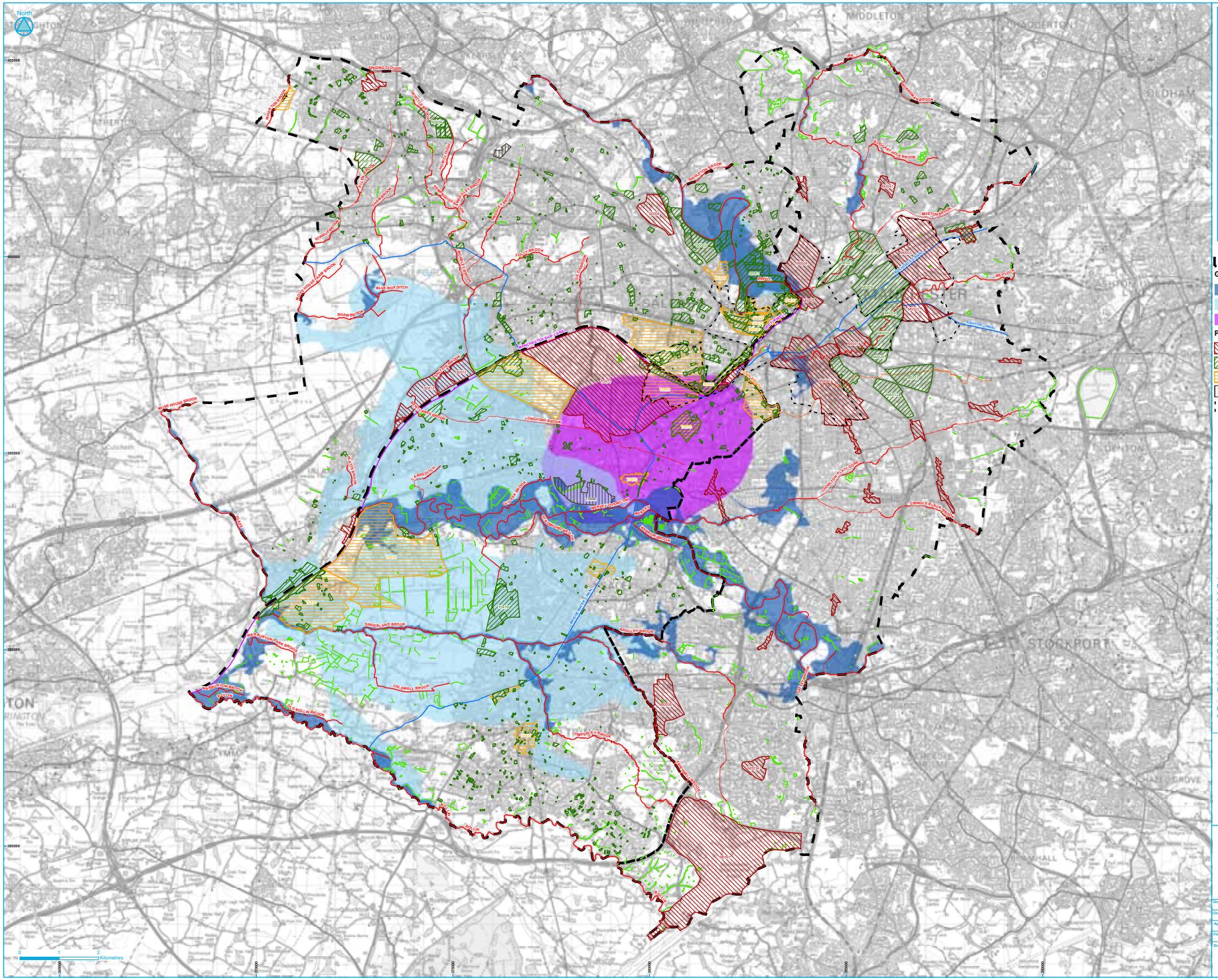
REV	DATE	DESCRIPTION

Layer Surveys Ltd
See the Complete Picture

Client

Project Title
Coltyhurst
Manchester

Surveyed	Drawn	Checked			
C.T	G.B	D.W			
Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	May 20	Lay0315	012	A0	01



The map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide. This map shows areas that are potentially at risk from groundwater flooding and should be used to scope suitable mitigation measures in a site specific Flood Risk Assessment.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The information on the map is based on Environment Agency potential groundwater rebound areas, data from the Coal Authority, BGS drift geology mapping and Defra Groundwater Emergence Maps.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

JBA Consulting

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Other offices at Atherstone, Doncaster, Edinburgh, Haywards Heath, Limerick, Newcastle upon Tyne, Newport, Northallerton, Saltaire, Skipton, Tadcaster & Wallingford

for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Groundwater Flooding

Drawn by:	J Cheetham	Date:	08/03/2011
Checked by:	J Dimelow	Date:	01/02/2011
Approved by:	J Cooper	Date:	01/02/2011

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File Name: ...ArcView\Mapping\Level1\MST_GroundwaterFlooding_V1.3.mxd

Drawing Number:	Status:	Scale:
GW_2.1	FINAL	1:45,000

Original @ A1

APPENDIX C

Correspondences received to date

Minutes for meeting/s with LLFA

Andrea McGee

From: Davies, Andy <Andy.Davies1@environment-agency.gov.uk>
Sent: 15 October 2020 15:53
To: Andrea McGee
Cc: Telfer, Helen; Thomas, Sandrine
Subject: RE: 201009/JPF17 1226-01-EA PDE - Collyhurst Village & Collyhurst South
Attachments: dps1.rtf; dps1.rtf

Hi Andrea,

Thank you for your pre-application enquiry.

Regarding your drainage proposals, rates of discharge will be for confirmation/acceptance by the Lead Local Flood Authority, we do not comment on this aspect at planning.

Regarding infiltration, I note that due to historic conditions / potential for contamination this approach for site drainage has been ruled out. It would be advisable to confirm as part of any subsequent planning application that infiltration will not occur and that any features which could enable infiltration e.g. swales will be lined with an impermeable membrane, or similar, if there is the possibility of remnant contamination beneath.

Regarding your FRA enquiry, please can I draw your attention to the previous letters of advice/ correspondence held with Civic Design Engineers, attached above, for the Collyhurst Village site. A check with our Flood Risk Team indicates that the post-meeting actions noted within EA letter SO/2020/120194/01-L01 have not yet occurred.

Once you have had a chance to review the attached letters and liaise with your internal team I would happy to discuss appropriate next steps.

Kind regards,

Andy

Andy Davies
Planning Advisor, Sustainable Places Team | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: SPPlanning.RFH@environment-agency.gov.uk
Mobile: **0739 379 8325**

I am currently working remotely and have limited access to emails due to capacity issues on our remote server.
I will respond to your email at the earliest opportunity. However, if your query is urgent please contact me on my mobile

---

From: Andrea McGee [mailto:andrea.mcgee@civicengineers.com]
Sent: 07 October 2020 15:18

To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: 201009/JPF17 1226-01-EA PDE

Good Afternoon,

We are currently in the process of developing a drainage strategy for the above sites at Collyhurst, Manchester. The proposed sites are located of Rochdale Road;

- Collyhurst Village: approximate post code is: M40 7XH and the approximate National Grid Reference is: 385601,400519.
- South Collysurst: approximate post code is: M40 7QH and the approximate National Grid Reference is: 385479,399754.

The proposed development is to comprise of up to:

- Collyhurst Village : 300 residential properties – approximate site area - 4.2ha
- South Collyhurst: 36 residential properties – approximate site area - 0.5ha

Both development boundaries are located within Flood zone 1. Neither a sequential exception testing is considered necessary for this development.

The design is still currenting a WIP and so is subject to some minor alterations as the design progresses.

The entire site is located in Flood zone 1.

Infiltration
Due to the historic nature of the site , infiltration is not considered feasible as there are a number of potential contamination sources across the sites remnant from the previous developments include asbestos, metals and hydrocarbons. Site geology is mapped as Till over Pennine Coal Measure in the north and central parts of the site. Investigation included in link.

Surface water body
The River Irk is approximately 240m west of the site. Moston Brook is culverted beneath Thornton St .

Our Drainage proposals are to collect surface water through conventional piped system that utilises Suds features within the site and a Pond to the south of the site as a form of attenuation storage. It appears that the existing UU network discharges in to the culvert. Therefore we proposed drain to the park, attenuate, discharge to the UU sewer which then discharges into the culvert. This culvert then discharges to the River Irk.

The site has been divided into 4 Catchments, A, B,C,D. We Propose to discharge Surface water at Brownfield rates, incorporating a 50% betterment.
Catchment A: Brownfield rate - 17.4l/s_ Collyhurst Village
Catchment B: Greenfield rate - 5.1/s_ Collyhurst Village
Catchment C: Brownfield rate - 17.6l/s_ Collyhurst Village
Catchment D: Brownfield rate – 22.5l/s_ Collyhurst Village
Catchment E: Brownfield rate – 15 l/s _South Collyhurst

It is proposed to discharge foul and surface water into the existing UU network located within:

- Thornton St for Collyhurst Village development.
- Winscombe Drive South Collyhurst development

A PDE has been issued to the LLFA and UU to confirmed preferred points of connections and suitable rates.

Based on the above, Can the EA provide any information that would be considered beneficial towards the FRA and obtaining a successful application.

If you require anything further from me please do not hesitate to let me know.

Civic Engineers
Carvers Warehouse 77 Dale Street
Manchester
Manchester
M1 2HG

Our ref: SO/2020/119988/01-L01
Your ref: 1226-01

Date: 04 February 2020

FAO: Peter Collier

Dear Mr Collier

PRE-APPLICATION ENQUIRY - LAND AT COLLYHURST VILLAGE, MANCHESTER

NEEDWOOD CL, MANCHESTER M40 8JN

Thank you for your pre-application enquiry. This request was received in office on the 16th January 2019.

Documentation Reviewed:

- 1226-01-CIV-XX-GA-DR-C-0001 P01 – Red Line Plan – Collyhurst Village
- EA Flood Map Planning Extract – Location: 385617/400388 Reference: Collyhurst

Environment Agency Commentary

We note from the red line plan provided (1226-01-CIV-XX-GA-DR-C-0001 P01) that the development proposal will be located in close proximity to the current alignment of Moston Brook water, part of the part of the wider River Irk WFD waterbody (Irk (Wince to Irwell, WFD Ref: GB112069061131).

From the indicative layout shown within 1226-01-CIV-XX-GA-DR-C-0001 P01, the current development proposal would involve building over/within 8 metres of the culverted watercourse, Moston Brook a designated "main river" and would not utilise current greenspace areas on site. The creation of development over a culvert is not considered good practice, as it could result in increased flood risk, cause and/or exacerbate access and maintenance issues once built and finally does not offer environmental/ecological enhancement. Consequently, as presented, it is unlikely that we would grant a Flood Risk Activity Permit for this application.

As part of any future development we would seek that developer first ascertains the possibility of de-culverting this section of the Moston Brook waterbody and where deemed impractical, based on a technical and/or financial evaluation, seeks to ensure any future development scheme avoids further deterioration of the waterbody status and condition.

We would recommend that the exact size, depth and line of the culvert is initially determined and the proposed site layout brought forward takes this information and the above EA position in consideration.

As part of your planning application you would be required to submit plans showing the exact line, size and depth of the culvert in relation to the proposed buildings. Buildings

should be sited no closer to the culvert walls than relating culvert depth below ground and development levels should provisioned which reduce the residual risk of flooding in the event of a culvert collapse or blockage. We understand that the culvert reports from our Asset Performance team have been provided to yourselves by our Customers and Engagement team under reference GMMC157479AB which should enable further investigations on both culverts.

With reference to the large areas of existing greenspace, we would recommend as part of future scheme design, ecological assessment be undertaken of the existing site to inform and shape future scheme design, and identify how new surface water drainage design will protect the Moston Brook ecological receptor, avoid new urban diffuse pollution, and look to adopt multifunctional sustainable urban drainage options where feasible. For information see:
(https://www.ciria.org//Memberships/The_SuDs_Manual_C753_Chapters.aspx)
The current indicative layout shown within 1226-01-CIV-XX-GA-DR-C-0001 P01, does not suggest these elements have been integrated as part of scheme design at present.

As part of new Environment Bill (https://www.gov.uk/government/publications/draft-environment-principles-and-governance-bill-2018/environment-bill-summer-policy-statement-july-2019) and government's commitment to sustainable development and biodiversity net gain; as well as draft Greater Manchester Spatial Framework (https://www.greatermanchester-ca.gov.uk/what-we-do/housing/greater-manchester-spatial-framework/gmsf-full-plan/) reflecting new environmental policies sought by government, future schemes such as this will likely need to show clearly how they are in accordance with this upcoming environmental policy guidance.

We would request the applicant review the layout and provide a continuous 8 metres easement measured from either side of the culvert wall to ensure essential maintenance and emergency access to the watercourse are properly provisioned. We would also welcome any proposals which offer further benefit such as daylighting of the watercourse.

Further to the above, we would also highlight from satellite imagery reviewed that the proposed development appear appears to have been subject previous built development which could represent a risk of pollution to controlled waters (close proximity to watercourse receptor / situated upon a Secondary A Aquifer). To address this matter, we recommend that you refer to our published 'Guiding Principles for Land Contamination' which outlines the approach which should be adopted when managing this site's risks to the water environment.

To ensure proper model procedures and good practice, we recommend that developers should:

- Follow the risk management framework provided in CLR11, Model Procedures for the Management of Land Contamination, when dealing with land affected by contamination
- Refer to our Guiding principles for land contamination for the type of information that we require in order to assess risks to controlled waters from the site - the local authority can advise on risk to other receptors, such as human health
- Consider using the National Quality Mark Scheme for Land Contamination Management which involves the use of competent persons to ensure that land contamination risks are appropriately managed

Cont/d..

- Refer to the contaminated land pages on gov.uk for more information

Waste Material – Advice to Applicant / Developer

Waste on-site

The CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2) provides operators with a framework for determining whether or not excavated material arising from site during remediation and/or land development works is waste or has ceased to be waste. Under the Code of Practice:

- excavated materials that are recovered via a treatment operation can be reused on-site providing they are treated to a standard such that they are fit for purpose and unlikely to cause pollution
- treated materials can be transferred between sites as part of a hub and cluster project
- some naturally occurring clean material can be transferred directly between sites

Developers should ensure that all contaminated materials are adequately characterised both chemically and physically, and that the permitting status of any proposed on-site operations are clear. If in doubt, the Environment Agency should be contacted for advice at an early stage to avoid any delays. We recommend that developers should refer to:

- the position statement on the Definition of Waste: Development Industry Code of Practice
- The waste management page on GOV.UK

Waste to be taken off-site

Contaminated soil that is (or must be) disposed of is waste. Therefore, its handling, transport, treatment and disposal are subject to waste management legislation, which includes:

- Duty of Care Regulations 1991
- Hazardous Waste (England and Wales) Regulations 2005
- Environmental Permitting (England and Wales) Regulations 2016
- The Waste (England and Wales) Regulations 2011

Developers should ensure that all contaminated materials are adequately characterised both chemically and physically in line with British Standard BS EN 14899:2005 'Characterization of Waste - Sampling of Waste Materials - Framework for the Preparation and Application of a Sampling Plan' and that the permitting status of any proposed treatment or disposal activity is clear. If in doubt, the Environment Agency should be contacted for advice at an early stage to avoid any delays.

If the total quantity of hazardous waste material produced or taken off-site is 500kg or greater in any 12 month period, the developer will need to register with us as a hazardous waste producer. Refer to the hazardous waste pages on GOV.UK for more information.

Cont/d..

Environmental Permit / Flood Risk Activity Permit

This development may require a permit under the Environmental Permitting (England and Wales) Regulations 2016 from the Environment Agency for any proposed works or structures, in, under, over or within eight metres from either side of the culvert of Moston Brook, designated a 'main river'. This was formerly called a Flood Defence Consent. Some activities are also now excluded or exempt. A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits.

The Environment Agency has discretionary powers to carry out maintenance works on the channels of "main river" watercourses to remove blockages and ensure the free flow of water. Information on riparian landowner's rights and responsibilities can be found at https://www.gov.uk/guidance/owning-a-watercourse

EA Charge Agreement Service

Should you wish us to review any technical documents or want further advice to *address the environmental issues raised,* we may do this as part of our charged for planning advice service.

Further engagement will provide you with *the opportunity to discuss and gain our views on potential options before formally submitting further information as part of your planning application.* It should also result in a better quality and more environmentally sensitive development.

As part of our charged for service we will provide a dedicated project manager to act as a single point of contact to help resolve any problems. We currently charge £100 per hour, plus VAT. We will provide you with an estimated cost for any further discussions or review of documents. The standard terms of our charged for service are available here.

If you would like more information on our planning advice service or should you have any queries regarding this letter, then please do not hesitate to contact me.

Yours sincerely

Mr Andy Davies
Sustainable Places Advisor

Direct dial 02077140640
Direct e-mail andy.davies1@environment-agency.gov.uk

End

Civic Engineers Ltd
Carvers Warehouse 77 Dale Street
Manchester
Manchester
M1 2HG

Our ref: SO/2020/120194/01-L01
Your ref: 1226-01

Date: 07 May 2020

FAO: Paul Morris

Dear Mr Morris

ENVPAC/1/GMC/00244 - NORTHERN GATEWAY DEVELOPMENT - TELECONFERENCE 23.04.20- RESIDENTIAL DEVELOPMENT - COLLYHURST MANCHESTER

NEEDWOOD CL, MANCHESTER M40 8JN

Thank you for meeting with the Environment Agency via Microsoft Teams on 23rd of April 2020 in order to discuss environmental constraints relating to land at Collyhurst , Manchester, part of the wider Northern Gateway redevelopment.

Please note that in attending this meeting and providing this response, we have used 4 hours of charge agreement ENVPAC/1/GMC/00244 (4 hours remaining).

As a follow on to our meeting discussions, please see outlined below a brief recount of proceedings.

Environment Agency Meeting Summary

Victoria Hunter (Far East Consortium, FEC) provided attendees with an overview of the proposed development in question and its siting within the wider context of the Northern Gateway redevelopment.

Further to this, Andy Davies (EA) explained previous engagement with Civic Engineers regarding the proposal via former Civic Engineers staff member Peter Collier, noting interest in understanding how the proposed development would interact with the main river culverted under the site and a preference to avoid construction which could hinder future maintenance and improvements of the watercourse in the subsequent future. Previous consultation on the wider Northern Gateway has also been undertaken with FEC via EA colleagues Helen Telfer (planning specialist) not present and Gary Morris (biodiversity officer) who was in attendance.

Paul Morris (Civic) explained that current position of the culverted watercourse was roughly known and further to this, surveys were to be commissioned to better understand its positioning and the current condition of the culvert pipe.

At present it is believed that the overall culverted extent is varying in depth but is approximately 22-25 metres deep for the northern “dog-leg” culvert and 13 metres deep at the southern boundary. It was explained by EA delegates that although the main river is registered as an EA interest in terms of culvert maintenance and repair responsibility was held by the riparian owner (usually the person who owns the land or property but may also be the tenant depending upon the agreement in place).

As part of the commissioned surveys and information gathering, the EA are keen to understand the history of the culverts that pass beneath the site, when, how and why they were constructed etc. and any information or knowledge that could be shared to inform the subsequent EA determination. With regards to this, Sandrine Thomas (EA) noted that the main issue to address is access and maintenance, given if there was the possibility of a total or partial collapse of the culvert. As current indicative proposals suggest development within the 8 metres river easement, there is potential a risk of a collapse event occurring without suitable consideration and build design.

Charles (Civic) reiterated that they will request for a structural survey to be undertaken to establish the line of the culvert and will also explore any recommendations to potentially extend the culvert design life mitigating collapse. With regards to building over the culvert Charles explained that it's successfully achieved in other similar instances and that the lessons learned from this can be drawn upon. However, further to this the EA advises consideration into revising the layout, if feasible, to avoid building over the culvert reducing risk of collapse.

In the instance that development will fall within the 8m easement (to be confirmed subject to further survey and design refinement), Sandrine agreed she would consult with the EA's Asset Performance team to identify Agency requirements and provide notification to the developer/ agent / Civic Engineers. For any proposal, regardless of easement, it will be important to ensure that no additional loading is placed on the culvert and that adequate access is provided for any future replacement/repairs.

With regards to site drainage, Civic Engineers note that they will discuss with Manchester Lead Local Flood Authority their proposed surface water drainage management and also via FEC explore the opportunity for adoption of SUDs with United Utilities.

Gary Morris (EA, FBG), spoke about our concerns about the potential loss of existing greenspace. I response, Victoria (FEC) further explained the wider redevelopment proposals of the Northern Gateway site in Collyhurst area in particular the creation of new public open greenspace directly to the south of proposed new residential scheme. Further to this, FBG recommended that the schemes planned wider environmental package of works be specified in any future planning submission, to show how loss of existing greenspace is being mitigated. FBG also welcomed scheme's aspirations to be a SUDS exemplar.

Andy (EA) noted that given the site's locale there was the potential for historical sources of contamination. Given the present of a vulnerable receptor on site, it will be important as part of further investigations to fully understand the site characteristics and possibility of contamination source pathways to Moston Brook and wider River Irk waterbody.

--

Further to the above recount, we look forward to receiving notification of the outcomes of further site investigations to be undertaken and if requested, the facilitation of any further discussion or review under charge agreement ENVPAC/1/GMC/00244.

If needed an extension to ENVPAC/1/GMC/00244 can be arranged to encompass further EA work.

Should you have any queries regarding this response, then please do not hesitate to

contact me.

Yours sincerely

Mr Andy Davies
Sustainable Places Advisor

Direct dial 02077140640
Direct e-mail andy.davies1@environment-agency.gov.uk

End

Andrea McGee

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 19 October 2020 16:01
To: Andrea McGee
Cc: Wastewater Developer Services
Subject: RE: 1226-01 UU PDE - Rochdale Road M40 7XH - UU Ref 4200034144

Good Afternoon Andrea,

Pre Development Enquiry for: Rochdale Road M40 7XH UU Reference Number : 4200034144

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

https://www.unitedutilities.com/builders-developers/working-near-our-assets/

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 375mm diameter public foul water sewer within Thornton Street North located to the East of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website: https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

https://www.gov.uk/government/publications/groundwater-protection-position-statements

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the culverted watercourse located within Thornton Street North of the proposed site.

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

https://www.water.org.uk/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf

Existing Wastewater Assets Crossing the Site

According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:
https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

United Utilities
Water for the North West

Matthew Dodd
Developer Engineer
Developer Services & Metering
Customer Services
T: 07468 758244
unitedutilities.com

If you have received a great service today why not tell us?
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We now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk

---

From: Andrea McGee [mailto:andrea.mcgee@civicengineers.com]
Sent: 07 October 2020 15:11
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: 1226-01 UU PDE

Good Morning/Afternoon,

We are currently in the process of developing a drainage strategy for the above sites at Collyhurst, Manchester. The proposed sites are located of Rochdale Road;

- Collyhurst Village: approximate post code is: M40 7XH and the approximate National Grid Reference is: 385601,400519.
- South Collysurst: approximate post code is: M40 7QH and the approximate National Grid Reference is: 385479,399754.

The proposed development is to comprise of up to:
Collyhurst Village : 300 residential properties – approximate site area - 4.2ha
South Collyhurst: 36 residential properties – approximate site area - 0.5ha

Both development boundaries are located within Flood zone 1. Neither a sequential exception testing is considered necessary for this development.

Please see link to initial drainage considerations for the discharge of surface water for the proposed developments.

https://we.tl/t-5xNyzTLYHK

The design is still currenting a WIP and so is subject to some minor alterations as the design progresses.

The entire site is located in Flood zone 1.

Infiltration
Due to the historic nature of the site , infiltration is not considered feasible as there are a number of potential contamination sources across the sites remnant from the previous developments include asbestos, metals and hydrocarbons. Site geology is mapped as Till over Pennine Coal Measure in the north and central parts of the site. Investigation included in link.

Surface water body
The River Irk is approximately 240m west of the site. Moston Brook is culverted beneath Thornton St .

Our Drainage proposals are to collect surface water through conventional piped system that utilises a Suds features within the site and a Pond to the south of the site as a form of attenuation storage. It appears that the existing UU network discharges in to the culver. Therefore we proposed drain to the park, attenuate, discharge to the UU sewer which then discharges into the culvert. This culvert then discharges to the River Irk.

The site has been divided into 4 Catchments, A, B,C,D. We Propose to discharge Surface water at Brownfield rates, incorporating a 50% betterment.
Catchment A: Brownfield rate - 17.4l/s_ Collyhurst Village
Catchment B: Greenfield rate - 5.1/s_ Collyhurst Village
Catchment C: Brownfield rate - 17.6l/s_ Collyhurst Village
Catchment D: Brownfield rate – 22.5l/s_ Collyhurst Village
Catchment E: Brownfield rate – 15 l/s _South Collyhurst

Can UU confirm preferred point of connections and that proposed discharge rates are acceptable.

It is proposed to discharge foul and surface water into the existing UU network located within:

- Thornton St for Collyhurst Village development.
- Winscombe Drive South Collyhurst development

Can you confirm that UU will accept foul and surface water discharge into the existing network located with Thornton Street and Winscombe Drive, Whitley Road?

If you require anything further from me please do not hesitate to let me know.

Kind regards

AndreaMcGee
Civil Design Engineer

Tel:0161 228 6757

Civic Engineers

Manchester / London / Leeds / Glasgow

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EMGateway3.uuplc.co.uk made the following annotations

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Andrea McGee

From: Ryan Horngren
Sent: 02 November 2020 15:14
To: oliver.timmins@manchester.gov.uk
Cc: Paul Morris; Andrea McGee
Subject: 1226-01 LLFA PDE
Attachments: 1994-EXA-00-GF-DR-L-100.pdf; 1226-01-CIV-XX-VIL-DR-D-0500 - Existing Drainage Catchments-North Collyhurst.pdf; 1226-01-CIV-XX-ZZ-SK-C-0004-P02 - DRAINAGE STRATEGY_ATTENUATION WITHIN PARK.pdf

Hi Oliver,

Thank you for your response below in connection to the proposed residential development to Collyhurst.

Additional info for download

We would like to respond to your points raised and discuss further in aid of an agreeable drainage solution. We are looking to include as much SuDS features as we can to make this an exemplar development with in Greater Manchester. We have approached UU and MCC highways to discuss the adoption of such features with the below strategy developing from these discussions.

As the highways are being put forward for adoption we are exploring alternatives to permeable paving that allow for greener drainage pathways. As a result we would be looking to drain dwellings and highways through raingardens and treepits strategically placed to intercept the surface water. Once collected, the water will be piped at sub-base level and conveyed to the adjacent proposed park where it will be discharged into a swale and/or attenuation pond. From here the attenuated surface water will be discharged at an agreed rate to the surface water sewers adjacent to the park.

The following drainage hierarchy is being followed:

- Infiltration – not possible (infiltration tests failed with deep existing made ground being observed on site) see attached ground investigation report
- Water body – no open water body near by with in an acceptable distance for discharge
- Surface water sewer – existing surface water sewer adjacent to the development proposed for discharge. Discussions with UU positive.

With the shear size of the development and proposed park space we would like to discuss agreeing a discharge rate that is made up of greenfield rates and a 50% betterment on brownfield rates, portioned out according to the attached existing catchment drawing. We would like to ask that catchment A, C and D are agreed to discharge at a 50% betterment on the brownfield rate with catchment B discharging at the greenfield rate. As you will see there is considerable existing impermeable surfacing on catchments A, C and D, with surveyed existing surface water sewers present. The existing buildings contained onsite have been demolished making way for future development.

The following rates are put forward for consideration:
atchment A – 17.4 l/s
Catchment B – 5.1 l/s
Catchment C - 17.6 l/s
Catchment D – 22.5 l/s

We believe the proposed raingardens and treepits, where water will be collected, through out the proposed development will allow at source attenuation slowing down the surface water time of concentration before collecting with in the attenuation pond. The end of system attenuation pond will provide further amenity and biodiversity with a permanent water body proposed. The proposed park will be providing further green space to the community.

To accommodate the permanent water body we ask the discharge rates above are agreed to as the time of concentration will be longer for the proposed system, leading to delay of surface water entering the existing infrastructure.

We have a meeting with MCC this Thursday to discuss the development and in specific the drainage, however it might be beneficial for us to have a discussion prior to this if you are available? If you have time let me know and I'll make myself available to discuss further.

In the meantime, if you require any further information please let me know.

Regards,
Ryan

From: oliver.timmins@manchester.gov.uk <oliver.timmins@manchester.gov.uk> on behalf of floodriskmanagement@manchester.gov.uk <floodriskmanagement@manchester.gov.uk>
Sent: 22 October 2020 12:45
To: Andrea McGee <andrea.mcgee@civicengineers.com>
Subject: Re: 1226-01 LLFA PDE

Hi Andrea,

Thanks for your enquiry. See below my response.

Points of Discharge:

Although some level of contamination on site has been mentioned in the 'Preliminary Risk Assessment', we would require that a Site Investigation is carried out on both sites to identify the specific levels of pollution and then how this relates to the potential for draining areas of the site via infiltration. In accordance with the drainage hierarchy we would require that soakaway tests are carried out on site to BRE 365 standard before any other points of discharge are agreed.

Note: Our records show a culverted main river (Moston Brook) to run through the centre of the Collyhurst Village site, any works involving/within close proximity to this culvert will require discussions with the EA.

Discharge rates:

Both of the existing sites are green areas with a substantial amount of green vegetation and which are frequently used by the public for recreational activities. Therefore, we would require that all discharge rates are restricted to greenfield run-off rates to mimic that of the existing site and to create a drainage betterment. In addition, as both of the sites are existing green areas we would require that the use of green SuDS on site are maximised to compensate for the removal of the existing green space.

Historic Flood Records:

Our records do not show any previous records of flooding on either of the sites.

If you require any further discussions regarding this site then let me know.

Kind Regards,

Oliver

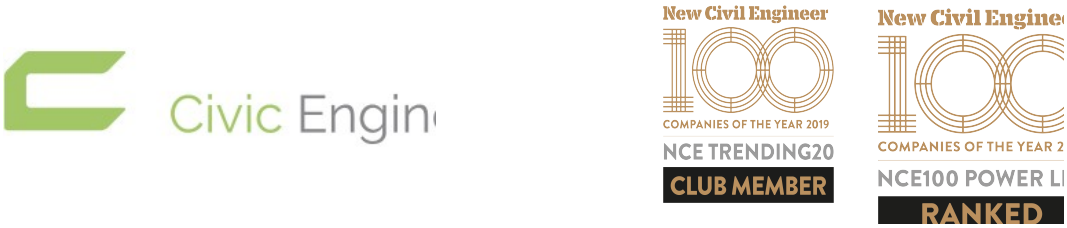
Flood Risk Management
Highways Service, Growth and Neighbourhoods Directorate
Manchester City Council
Tel: 0161 219 6295
Email: floodriskmanagement@manchester.gov.uk

Web: http://www.manchester.gov.uk/

POSTAL ADDRESS: Manchester City Council, Public Realm, The Neighbourhood Service, PO Box 532, Town Hall, Manchester M60 2LA

Ryan Horngren
Civil Design Engineer

Tel: 0161 228 6757
DDI:0161 470 7703



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From: Andrea McGee <andrea.mcgee@civicengineers.com>
To: "floodriskmanagement@manchester.gov.uk" <floodriskmanagement@manchester.gov.uk>,
Date: 07/10/2020 15:13
Subject: 1226-01 LLFA PDE

FAO Lead Local Flood Authority.

Good Afternoon.

We are currently in the process of developing a drainage strategy for the above site at Collyhurst, Manchester.
The proposed sites are located of Rochdale Road;

- Collyhurst Village: approximate post code is: M40 7XH and the approximate National Grid Reference is: 385601,400519.
- South Collysurst: approximate post code is: M40 7QH and the approximate National Grid Reference is: 385479,399754.

The proposed development is to comprise of up to:
Collyhurst Village : 300 residential properties – approximate site area - 4.2ha
South Collyhurst: 36 residential properties – approximate site area - 0.5ha

Both development boundaries are located within Flood zone 1. Neither a sequential exception testing is considered necessary for this development.

Please see link to initial drainage considerations for the discharge of surface water for the proposed developments.

https://we.tl/t-15tX0WYuLu

The design is still currenting a WIP and so is subject to some minor alterations as the design progresses.

The entire site is located in Flood zone 1.

Infiltration
Due to the historic nature of the site , infiltration is not considered feasible as there are a number of potential contamination sources across the sites remnant from the previous developments include asbestos, metals and hydrocarbons. Site geology is mapped as Till over Pennine Coal Measure in the north and central parts of the site. Investigation included in link.

Surface water body
The River Irk is approximately 240m west of the site. Moston Brook is culverted beneath Thornton St .

Our Drainage proposals are to collect surface water through conventional piped system that utilises a Suds features within the site and a Pond to the south of the site as a form of attenuation storage. It appears that the existing UU network discharges in to the culver. Therefore we proposed drain to the park, attenuate, discharge to the UU sewer which then discharges into the culvert. This culvert then discharges to the River Irk.

The site has been divided into 4 Catchments, A, B,C,D. We Propose to discharge Surface water at Brownfield rates, incorporating a 50% betterment.
Catchment A: Brownfield rate - 17.4l/s_ Collyhurst Village
Catchment B: Greenfield rate - 5.1/s_ Collyhurst Village
Catchment C: Brownfield rate - 17.6l/s_ Collyhurst Village
Catchment D: Brownfield rate – 22.5l/s_ Collyhurst Village
Catchment E: Brownfield rate – 15 l/s _South Collyhurst

Can you advise if there was any historic flooding in this area?

Can you confirm what Manchester City Council's LLFA require from us as part of submission of our FRA and Drainage strategy for successful application.

If you require anything further from me please do not hesitate to let me know.

Kind regards

Andrea McGee
Civil Design Engineer
Tel: 0161 228 6757
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Andrea McGee

From: Andrea McGee
Sent: 07 December 2020 12:50
To: Andrea McGee
Subject: FW: 1226-01 - Collyhurst Village Site - Pre-Planning Drainage Strategy Review - Meeting Notes
Attachments: 1226-01-CIV-VIL-DR-EX-C-0205-P02 - Existing_Culverts_WIP.pdf; 1226-01-CIV-XX-VIL-DR-D-0500 - Existing Drainage Catchments-North Collyhurst.pdf; 1226-01-CIV-XX-VIL-DR-D-0504 - P04 - Proposed Drainage Strategy_WIP.pdf; 1226-01-CIV-XX-VIL-DR-HI-0350 - Typical Highway Section.pdf

Andrea McGee
Civil Design Engineer

Tel: 0161 228 6757

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From: Paul Morris <paul@civicengineers.com>
Sent: 15 November 2020 14:30
To: Neil Bayliss-Rowe <neil.bayliss-rowe@manchester.gov.uk>; Keith Garner <keith.garner@manchester.gov.uk>; Bernard Murtagh <bernard.murtagh@manchester.gov.uk>; derek.mccormack@manchester.gov.uk; floodriskmanagement@manchester.gov.uk; Tucker, Sophie <Sophie.Tucker@uuplc.co.uk>; McDermott, Daniel <Daniel.McDermott@uuplc.co.uk>; Victoria Hunter <victoria.hunter@fecil.uk>; Jonathan Miley <jonathan.miley@exteriorarchitecture.com>; Jonathan.Wilks@avisonyoung.com; Kevan, Richard (Avison Young - UK) <Richard.Kevan@avisonyoung.com>
Cc: Ryan Horngren <ryan@civicengineers.com>; Chris Kendrick <chris.kendrick@civicengineers.com>
Subject: 1226-01 - Collyhurst Village Site - Pre-Planning Drainage Strategy Review - Meeting Notes

Hi all,

Further to our meeting on Thursday 5th November last week please find our meeting notes as follows:

MCC – Bernard Murtagh, Keith Garner
MCC Highways and Flood Risk - Neil Bayliss-Rowe, Oliver Timmins, Laura Peacock
UU – Sophie Tucker, Daniel McDermott

FEC – Victoria Hunter
Avison Young – Jonathan Wilks
Exterior Architecture – Jonathan Miley
Civic Engineers – Paul Morris, Ryan Horngren

1. Civic Engineers presented the site context, development proposals and site constraints including the presence of culverts beneath the site.
2. Civic Engineers presented the site wide drainage strategy. Generally the principle is to drain plot B,C and D through source control measures before discharge to an attenuation pond in the northern portion of the park. The pond will have a permanent water body adding to the amenity in the area with the attenuation volume required being provided above this. Plot A will be drained through source control measures before being attenuated further in oversized pipes or similar and discharged to the existing public sewer at a 50% betterment on the existing brownfield rate. UU and MCC Highways and Flood Risk require evidence of the existing points of connection and onward connection to the culverted watercourse (**CE Action**)
3. Civic Engineers explain the proposed discharge rate has been calculated based on greenfield run off rate from areas that are currently permeable and 50% reduction from areas that are currently hardstanding and positively drained. MCC Highways and Flood Risk advised that this was acceptable in principle subject to further review of the drawings and calculations.
4. MCC Highways and Flood Risk stated that they are supportive of the implementation of nature based SuDS and adoption as part of the Highway. Permeable paving is no longer shown within the areas proposed for adoption in line with previous correspondence. The principle of adoption of raingardens and SuDS tree pits was accepted subject to submission of further details around maintenance and management as previously requested.
5. The potential for a swale to be provided along the eastern edge of Thornton Street North was discussed. As this would likely only provide drainage function for the Highway it would not be adoptable by UU. MCC advised that they had not previously anticipated adoption of this feature but would discuss internally and advise.
6. MCC raised a query as to whether the attenuation in the Park could potentially be used to serve future phases of the development. The design team agreed to review but stated that this was unlikely due to the demands on space from current attenuation, play space and tree planting etc.
7. UU are supportive of the proposals and of the principle of adoption of the piped below ground drainage (conveying both highways and plot drainage) and the proposed attenuation basin subject to development of the details. UU stated their support for the provision of source control SuDS measures where practicable prior to surface water discharging to the below ground drainage network.
8. UU raised a comment on the location of the outfall from the pond as currently shown on the drawings. CE advised that this was indicative only and would be revised as the proposals developed to align with the recommendations as set out in the relevant guidance.
9. UU advised that any existing infrastructure abandonment and diversion applications should be submitted as soon as possible. All correspondence and applications should be marked for the attention of Daniel McDermott. UU request existing surveys to be sent through along with revised drainage proposals with rates and connections points to the existing adopted sewers. (**CE Action**)
10. Further discussion is required regarding the maintenance strategy for the park and the interface with the adoptable elements of the proposed pond.

If you have any comments at all or anything to add please let us know and we will update as necessary.

I have also attached the drawings that we presented at the meeting. These drawings are currently being developed ahead of the planning application and revisions will be submitted along with supporting information as previously discussed but we have attached at this stage to allow for any further review and comment ahead of the application.

Please don't hesitate to get in touch if you would like to discuss at all.

Thanks,

Paul

Paul Morris
Director

Mobile: 07793 868 265
Tel: 0161 228 6757

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APPENDIX D

Micro - Drainage Calculations

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	10.000	0.067	150.0	0.272	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	10.000	0.067	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.16	5.000	0.272	0.0	0.0	0.0	1.07	42.4	36.8
1.001	50.00	4.31	4.933	0.272	0.0	0.0	0.0	1.07	42.4	36.8

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Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.354
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%					5.179
1.001	2	15 Winter	1	+0%					5.112

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.046	0.000	0.99		34.8	OK	
1.001	2	-0.046	0.000	0.97		34.4	OK	

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.450
Area (ha)	0.663	Urban	0.015
SAAR (mm)	864	Region Number	Region 10

Results l/s

QBAR Rural	3.7
QBAR Urban	3.8
Q2 years	3.6
Q1 year	3.3
Q30 years	6.4
Q100 years	7.9

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.470
Area (ha)	0.780	Urban	0.000
SAAR (mm)	922	Region Number	Region 10

Results l/s

QBAR Rural	5.2
QBAR Urban	5.2
Q1 year	4.5
Q1 year	4.5
Q30 years	8.8
Q100 years	10.8

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Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.354
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%					5.223
1.001	2	15 Winter	1	+0%					5.137

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.027	0.000	1.00		45.0	OK	
1.001	2	-0.046	0.000	1.00		44.9	OK	

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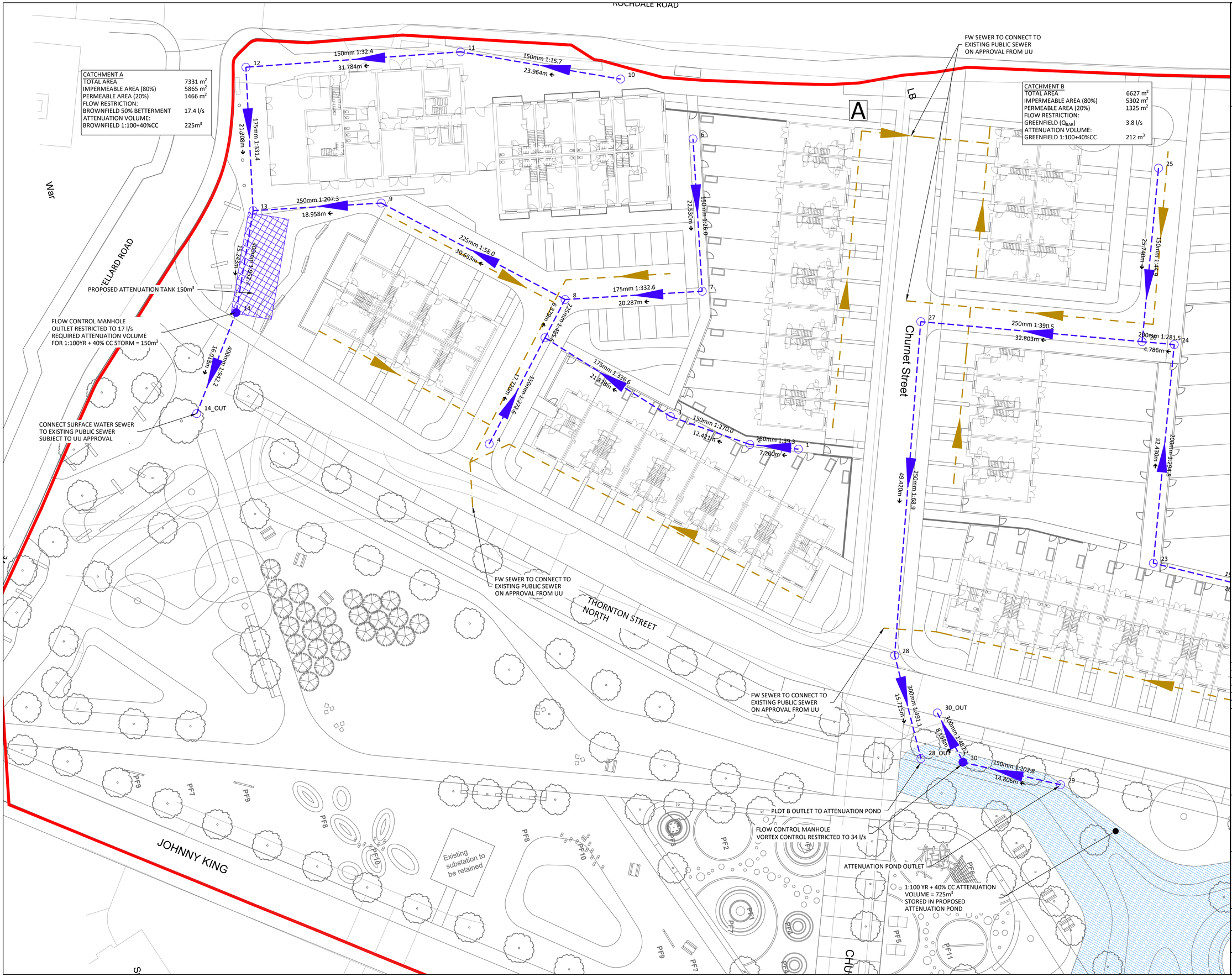
APPENDIX E
Proposed Drainage Strategy

Catchment Plans



Standard Notes

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1. TOPOGRAPHICAL SURVEY CONDUCTED BY SURVEY OPERATIONS TITLED "TOPOGRAPHICAL SURVEY OF LAND AT: LAND OFF ROCHDALE ROAD COLLYHURST MANCHESTER" DRAWING NUMBER 19K190/003 DATED DECEMBER 2019.
2. ALL FOUL WATER SEWERS TO BE 150mm DIAMETER PIPES UNLESS STATED OTHERWISE

PROPOSED SURFACE WATER SEWER
PROPOSED SURFACE WATER MANHOLE
PROPOSED FLOW CONTROL MANHOLE
PROPOSED FOUL WATER SEWER
INDICATIVE PROPOSED ATTENUATION POND

Date	Rev	Description	Drawn	Chkd
18.12.20	P05	ISSUED FOR PLANNING	AMG	PM
16.12.20	P04	ISSUED FOR PLANNING	RSH	PM
15.04.20	P03	CHANGE IN DISCHARGE POINT	RSH	PM
27.03.20	P02	STAGE 2 ISSUE	RSH	PM
31.01.20	P01	ISSUED FOR INFORMATION	RSH	PJC

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LEEDS Tower Works, Unit 02-01, Globe Road, Leeds, LS11 5QG. Tel: 0113 2025 130
GLASGOW Gresham Chambers, 45 West Nile St, Glasgow, G1 2PT. Tel: 0141 370 1829
www.civicengineers.com

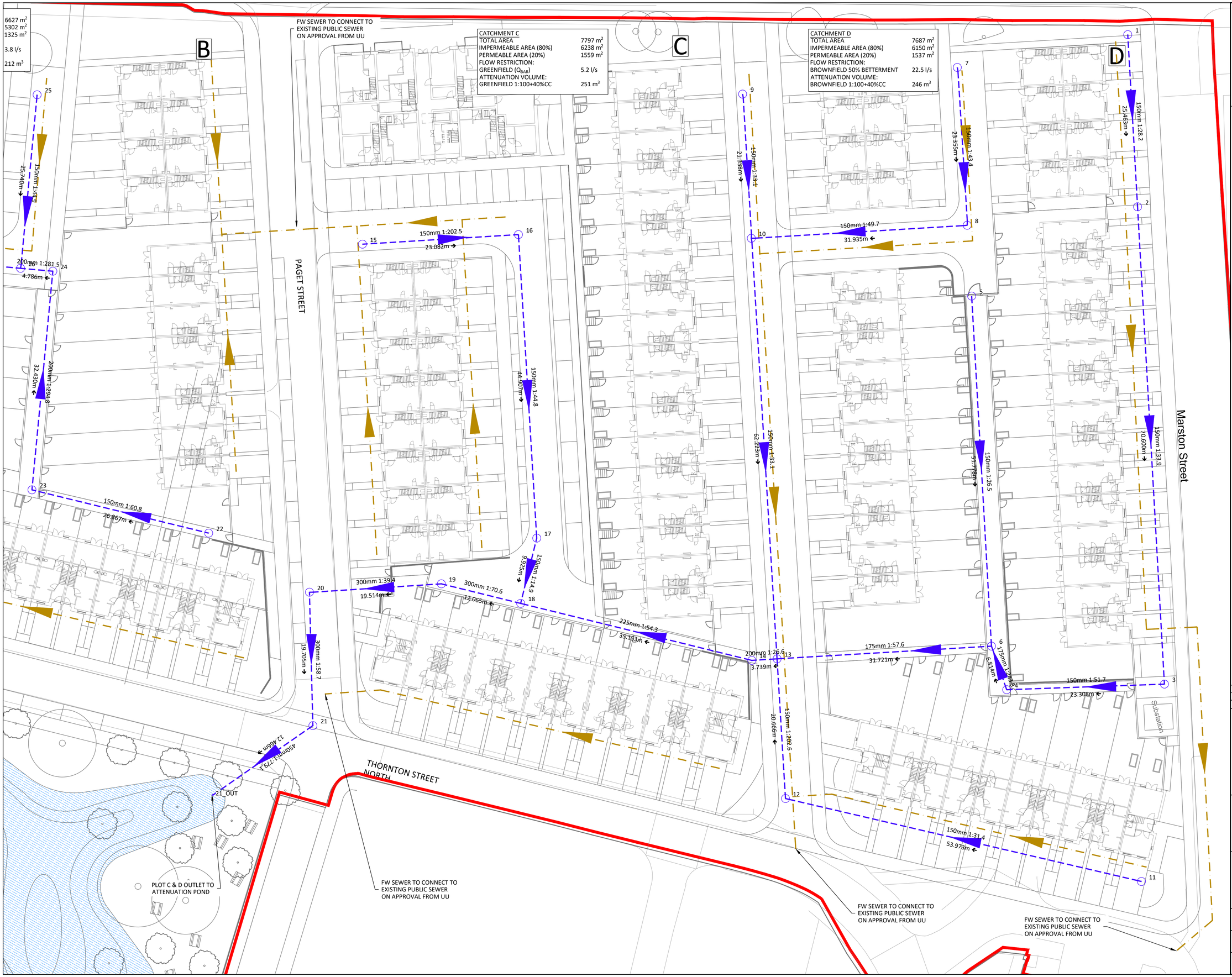
Project
COLLYHURST HOUSING
MANCHESTER

Title
COLLYHURST VILLAGE
PROPOSED DRAINAGE STRATEGY

Status
INFORMATION

Project Number	Scale @ A1	Date Created	Drawn	Checked	Suitability
1226-01	1:500	17.01.20	RSH	PJC	--

Drawing Number: 1226-01-CIV-XX-VIL-DR-D-0504
Revision: P05



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1. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specification.
2. This drawing should not be scaled.
3. All dimensions are to be verified by the contractor on site.
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2. ALL FOUL WATER SEWERS TO BE 150mm DIAMETER PIPES UNLESS STATED OTHERWISE

PROPOSED SURFACE WATER SEWER
PROPOSED SURFACE WATER MANHOLE
PROPOSED FLOW CONTROL MANHOLE
PROPOSED FOUL WATER SEWER
INDICATIVE PROPOSED ATTENUATION POND

Date	Rev	Description	Drawn	Chkd
18.12.20	P02	ISSUED FOR PLANNING	AMG	RM
16.12.20	P01	ISSUED FOR PLANNING	RSH	PM

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Project
COLLYHURST HOUSING
MANCHESTER

Title
COLLYHURST VILLAGE
PROPOSED DRAINAGE STRATEGY

Status
INFORMATION

Project Number	Scale @ A1	Date Created	Drawn	Checked	Suitability
1226-01	1:500	17.01.20	RSH	PM	--

Drawing Number	Revision
1226-01-CIV-XX-VIL-DR-D-0505	P02

CATCHMENT A	
TOTAL AREA	7331 m^2
IMPERMEABLE AREA (80%)	5865 m^2
PERMEABLE AREA (20%)	1466 m^2
FLOW RESTRICTION:	
BROWNFIELD 50% BETTERMENT	17.4 l/s
ATTENUATION VOLUME:	
BROWNFIELD 1:100+40%CC	225m^3

CATCHMENT B	
TOTAL AREA	6627 m^2
IMPERMEABLE AREA (80%)	5302 m^2
PERMEABLE AREA (20%)	1325 m^2
FLOW RESTRICTION:	
GREENFIELD (Q_{BAR})	3.8 l/s
ATTENUATION VOLUME:	
GREENFIELD 1:100+40%CC	212 m^3

CATCHMENT C	
TOTAL AREA	7797 m^2
IMPERMEABLE AREA (80%)	6238 m^2
PERMEABLE AREA (20%)	1559 m^2
FLOW RESTRICTION:	
GREENFIELD (Q_{BAR})	5.2 l/s
ATTENUATION VOLUME:	
GREENFIELD 1:100+40%CC	251 m^3

CATCHMENT D	
TOTAL AREA	7687 m^2
IMPERMEABLE AREA (80%)	6150 m^2
PERMEABLE AREA (20%)	1537 m^2
FLOW RESTRICTION:	
BROWNFIELD 50% BETTERMENT	22.5 l/s
ATTENUATION VOLUME:	
BROWNFIELD 1:100+40%CC	246 m^3

Standard Notes

1. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specification.
2. This drawing should not be scaled.
3. All dimensions are to be verified by the contractor on site.
4. All discrepancies should be reported to the C.A. prior to the commencement of the works.

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Notes and Keys

1. TOPOGRAPHICAL SURVEY CONDUCTED BY SURVEY OPERATIONS TITLED "TOPOGRAPHICAL SURVEY OF LAND AT: LAND OFF ROCHDALE ROAD COLLYHURST MANCHESTER" DRAWING NUMBER 19K190/003 DATED DECEMBER 2019.
2. EXISTING SERVICES INFORMATION HAS BEEN TAKEN FROM ASSET MAPS AND ARE SHOWN INDICATIVELY. ASSET MAPS RECEIVED FROM BUTTRESS ARCHITECTS ON 03/12/19.
3. CATCHMENT CURRENTLY INCLUDES AREA OF ADOPTED HIGHWAY

EXISTING IMPERMEABLE AREA

EXISTING PERMEABLE AREA

EXTENTS OF CATCHMENTS

Date	Rev	Description	Drawn	Chkd
17.12.20	P02	UPDATED CATCHMENT INFORMATION	LGS	AM
31.01.20	P01	ISSUED FOR INFORMATION	RSH	PJC

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GLASGOW Gresham Chambers, 45 West Nile St, Glasgow, G1 2PT, Tel: 0141 370 1829

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Project

COLLYHURST HOUSING
MANCHESTER

Title

COLLYHURST VILLAGE (NORTH SITE)
EXISTING DRAINAGE CATCHMENTS

Status

INFORMATION

Project Number	Scale @ A1	Date Created	Drawn	Checked	Suitability
1226-01	1:500	13.01.20	RSH	PJC	--

Drawing Number	Revision
1226-01-CIV-XX-VIL-DR-D-0500	P01

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