

MMP VERIFICATION REPORT MANCHESTER COLLEGE CAMPUS

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INCREASING LAND VALUE

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1 INTRODUCTION

1.1 The Commission

LK Remediate Ltd (LKR) has been commissioned by Willmott Dixon Construction Ltd (WD) to undertake a Verification Report in support of the MMP for the Manchester College Campus development at the former Boddington's brewery site. This report has been prepared in accordance with CL:AIRE DoW COP¹ and is designed to provide a record of material use on site.

The MMP declaration, reference 21/02/2020 11:54:24, is included in Appendix B.

1.2 Summary of Previous Work

The following reports have previously been produced in relation to the site and should be read in conjunction with this report:

- "Former Boddingtons Brewery Phase 1 Geo-Environmental Desk Study" undertaken by Capita (reference CS/084037-P1DS Revision 01, dated November 2015).
- "Ground Investigation Report – Manchester College" undertaken by AECOM (reference PR385460_002, dated September 2019).
- "Remediation Strategy" undertaken by LK Remediate, dated January 2020.
- "Enabling Works Verification Report" undertaken by LK Remediate (reference CLR191016VR, dated 10th June 2020).

A history of the site is included in the desk study and Ground Investigation Reports and comprised a brewery and printworks from earliest historical mapping c. 1848 onwards. Mapping shows a number of tanks, boilers and abstraction wells on site. Surrounding areas comprise typical industrial land uses (print works, cotton works, hat works, iron works, etc) throughout the history of the site. The site has been cleared and has been in use as a car park from c. 2010.

1.3 Additional Information

1.3.1 Waste Segregation Plan

To facilitate removal of surplus soils, a soil Waste Segregation Plan was produced for the benefit of site engineers and waste hauliers which outlined sources of surplus material to be removed from site. The plan incorporated relevant findings of the site investigation report, soils descriptions, laboratory analysis, waste classification and management strategy.

The report was sent to waste hauliers for consideration prior to the start of material being removed from site. The objective was to ensure that surplus materials generated from site were adequately classified and managed to identify a suitable destination.

The waste segregation plan was implemented on site by the LKR remediation site manager.

1.3.2 Asbestos in Soils Management Plan

An Asbestos in Soils Management Plan was produced prior to start on site. The AMP included an assessment of risk posed to construction workers and members of the public during enabling works and the presence of asbestos in soils.

The report also included results of air monitoring undertaken during archaeology excavations at the site. The AMP is not considered in this report.

1.3.3 H&S Risk Assessment & Method Statement

A RAMS was produced to the satisfaction of the Client and Principal Contractor under CDM Regulations prior to the start of the enabling works. The RAMS is not considered in this report.

¹ CL:AIRE "The Definition of Waste: Development Industry Code of Practice. Version 2". March 2011.

1.4 Site Description

The site is located at Great Ducie Street, Strangeways, Manchester, M3 1PT, measures an area of approximately 0.95ha and is centred on NGR 383838E 399191N. The site location is shown on drawing CC-SHP-ZZ-XX-DR-A-1003 (P02) and the proposed site layout is shown on drawing CC-SHP-ZZ-XX-DR-A-1005 (P03) in the Enabling works Verification Report (Appendix A).

1.5 Proposed Development

The pre-construction phase remediation works have been completed to allow the development of a five-storey educational building with associated access, servicing, landscaping, public realm and other associated works following removal of a car park. The proposed site layout is shown on drawing CC-SHP-ZZ-XX-DR-A-1005 (P03) included in the enabling works verification report in Appendix A.

Further 'build phase' remediation works are required to complete remediation works at the site.

2 MATERIAL MANAGEMENT

This verification report has been prepared in line with the Material Management Plan (declaration included in Appendix B), which specifically covers the reuse of material to form site levels and as construction platforms/ piling mat.

Material re-use on site formed part of the main enabling works and follow up 'civils construction' works. Due to works programming, there were some changes to the sequence of works undertaken on site and some phases of work occurred concurrently (for example, attenuation tank and some drainage). This is not considered to materially affect the materials re-use on site and does not constitute a significant change in the MMP.

Enabling works commenced in March 2020 and were completed in May 2020. 'Civils construction' began in April 2020 (concurrently with enabling works) and was completed in September 2020. LK Remediate (LKR) were responsible for maintaining MMP site records during the enabling works. Upon completion of enabling works and once LKR had demobilised from site, records were maintained by Banks Engineering and Management Ltd (BEMS).

To ensure the requirements of the MMP were maintained, LKR engineers visited the site on four further occasions following completion of enabling works. Visits were undertaken on the 29th June, 31st July, 14th August and 28th August 2020. Each visit included a site walkover and review of on-going records and projections for material re-use with WD and BEMS.

2.1 Regulatory Agreement

The Risk Assessment and Remediation Strategy were supplied to the Local Authority (Manchester) and Environment Agency contacts listed in the Materials Management Plan, prior to commencing site works. Both the Environment Agency and the Local Authority were consulted that the re-use of excavated materials would comply with the CL:AIRE Definition of Waste Code of Practice.

The Qualified Person declaration has been submitted to the EA at National Level, a copy of correspondence is in the MMP.

The project had planning consents in place for the work as described in the MMP.

2.2 Amendments to the Materials Management Plan

The MMP and volume re-use estimates were based on the originally provided remediated site levels. Following submission of the MMP and again during the enabling works, the remediated site levels (including the levels of the construction platforms) were revised on two occasions to facilitate the overall design. Generally, this comprised an increase in the main piling mat elevation from 29.5mAOD to 29.7mAOD across the majority of the site.

In addition, at time of submitting the MMP, the final detail of the construction of the ramp along the area of 'green strip' on the North East site boundary had not been finalised. A reasonable assumption of volumes was therefore incorporated into the MMP. The final detail of design was confirmed within the last few weeks of the enabling works programme.

Furthermore, the volume estimates in the declaration were based on reasonable assumptions of the ground conditions on site and overall site 'turnover' and sequencing of works. During the enabling works, some areas of the site were found to comprise significant thicknesses of made ground (up to 8-9m in places), voids and relict structures which altered the overall volumes considered for 're-use'. Works sequencing were also changed from the assumptions of the MMP, so material re-use from different aspects (such as the attenuation tank and some drainage) were incorporated into the enabling works.

Further amendments to volumes of re-use were undertaken as part of the civils construction phase. Description of the design changes are included in the BEMS reports in Appendix C.

The above amendments are not thought to materially affect the principles of the MMP and re-used materials are deemed to maintain the certainty of use criteria and volumes are not considered to be excessive.

2.3 Site Works

Details of the scope of the enabling works including excavation of underground relict structures, removal of underground storage tanks (USTs) and decommissioning of former abstraction wells is included in the enabling works verification report included in Appendix A (note – only pertinent appendices of the enabling works verification report are included for conciseness).

The enabling works verification report also includes discussion of the suitability of use for materials re-used on site with regards to the remediation strategy and site investigation risk assessment.

The enabling works report concludes:

“The site enabling and pre-construction remediation works have been carried out in accordance with the Remediation Strategy...submitted to the Local Authority.

The watching brief was maintained by a suitably qualified remediation site manager and geo-environmental consultant. No unexpected visual or olfactory evidence of contamination was identified during the enabling works...

A watching brief specifically for the presence of the former abstraction wells was maintained throughout the enabling works... borehole annuluses were filled with a bentonite pellet seal. A total of 7m³ of bentonite was used across the four [former abstraction wells] locations.

Precautionary testing of site won materials for re-use was undertaken. Materials reused on site are considered suitable for use and the site is suitable for the proposed development, subject to the recommendations and subsequent verification of the outstanding build phase remediation works detailed in remediation strategy report.

In addition to the above, the AECOM ground investigation and the LKR Remediation strategy reports concluded that the site soils were suitable for re-use under the proposed development scheme (subject to a watching brief) following remediation and subject to the findings of the watching brief. No evidence of contamination was identified during the works.

Geotechnical testing of the site generated material and placed site surfaces was also undertaken during the enabling works and prior to civils construction. Testing was scheduled to meet the requirements of the Client specifications. Geotechnical testing results and testing locations are included in Appendix D.

2.4 Tracking System and Material Re-Use

Upon commencing the enabling works, a weekly progress diary was maintained by the LKR remediation site manager (Appendix E). The site was zoned into approximate work areas (drawing reference LKR-19 1016/SRS/01) generally dictated by Client program requirements. A weekly photographic record is also enclosed (in addition to the enabling works photographs).

A schematic representation of the main enabling works phases, based on survey data, is included in Appendix E. This shows the overall enabling works sequencing recorded as part of the MMP verification – note the phases of works were undertaken concurrently and more detail is provided in the weekly progress diary. A WD surveyor was responsible for survey of the extent of the excavations to natural strata and ‘as-built’ levels (Appendix F).

The majority of materials encountered during the remediation works comprised made ground of largely demolition rubble, oversize, hard-standing and relict in-ground structures associated with the former site use. There was no significant variation in the type of made ground encountered across the site therefore segregation of made ground materials was not required. All hard standing and relict structures were crushed to form 6f2 for use in pile mat construction platforms. Made ground was also processed through the crusher reengineered to required levels and Client specification.

There were small volumes of natural strata (sand and clay) encountered in localised pockets associated with excavation of deeper structures (e.g. the chimney base (approximately 8-9mbgl) and in areas of shallower made ground beneath the temporary pile ramp in Area 8.

Due to the spatial and temporal constraints of the project, stockpiles were transient and temporary, often with excavated material being placed straight into the crusher and reinstated to form site levels. Maintenance of material movement (stockpile) records beyond the weekly progress diary enclosed was not feasible as part of the enabling works.

Surplus materials comprising made ground and natural soils were removed from site by suitably licensed contractors under waste duty of care protocols. This is discussed further in following sections.

Material tracking records for the 'civils construction' aspect have been provided by BEMS and are included in Appendix C.

2.5 Treatment Records

Below ground structures such as relic foundations, relic slabs and hardstanding were grubbed out. Large blocks were reduced in size using a hydraulic breaker. Metal scrap, and general waste was encountered during the excavation operation was separated into separate stockpiles for subsequent disposal. Made ground and hard materials therein were crushed and reused to form site levels and construction platforms.

On-site treatment of material for reuse, which included handpicking of small volumes of deleterious material such as wood, scrap (including uncontaminated scrap metal from USTs), a small section of ACM cement pipe, waste tyres and unsuitable general waste from made ground was small scale and did not constitute a waste treatment process requiring licensing or permitting; a separate record of the process is not necessary. Such material was segregated and removed from site by registered waste carriers. Duty of care records of waste disposal are included in Appendix G.

2.6 Quantity of Materials Used

The quantity of material re-used to form site levels is based on WD surveyed levels to natural strata (generally the extent of remediated levels) and remediated site levels shown on the survey undertaken by civils construction contractor (Appendix F). LKR re-use volumes by work area is included in Appendix F with a summary in the table below.

Area	Excavated Volume (m³)	Re-use Volume (m³)	Net Volume (m³)
1A	3,428	4,099	671
1B	3,620	2,974	-646
Attenuation tank (est)	n/a	400	400
1C	4,440	4,533	93
2	1,687	1,686	-1
3A	5,168	5,604	436
3B	5,071	4,999	-72
4	2,980	2,741	-239
5	3,053	2,725	-328
6	3,887	4,002	115
7	2,778	2,892	114
8	2,501	70	-2,431
Green Strip	3,669	3,017	-652
Ramp	n/a	310	310
Enabling Work Sub-total Volume (m³)			-2229

Notes:

Negative volume indicates surplus of material. Attenuation tank excavation volume included in Area 1B

The total re-use of material volumes as part of the enabling works is calculated, based on surveyed information, as 40,053m³ uncompacted volume compared to *circa* 31,279m³ anticipated in the MMP. It should be noted however, that the re-use volumes in the enabling works also includes from the civils construction phase (some of which was undertaken concurrently) including site drainage (~4,480m³), attenuation tank (~1,178m³) and contig pile wall excavations (~100m³). Furthermore, no 'un-suitable' material (~100m³ allowed) was removed from site and no subsoil was generated for use in clean cover soils (~50m³ allowed). Further changes were associated with a reduction in surplus volumes (from the estimated 5,478m³ to 2,229m³) by re-design of site levels and the green strip ramp.

With the above in mind, the variation in material re-use as part of enabling works from the MMP to completed site levels is *circa* 3,449m³ (approximately 3,100m³ when considering a 10% compaction factor). This equates to approximately 0.3m across the site area and is within 10% of the material re-use estimates. The differences in volumes of re-used materials reflect the amendments in the design (remediation finish levels, ramp) and the estimates of volumes based on the ground investigation report when compared to the actual ground conditions encountered. As described above and in the enabling works verification report, several areas of deeper made ground and voids, such as 8-9m of made ground beneath the former chimney base, basements, substructures and several other areas of deeper made ground were encountered in the enabling works.

BEAM volume of re-use and disposal calculations are included in Appendix C. The BEAM records show volumes of cut & fill compared to import and export volumes. Volumes calculated between LKR demobilisation from site and works completed to 17th July 2020 are included in BEAM Appendix A which shows a 1,336m³ surplus (disposal ticket records show approximately 2,140m³ material off site during this period). The BEAM Appendix B information also includes volume calculations and re-use from 17th July to completion of main groundworks. Records and calculations show a good correlation with survey data and disposal records within suitable tolerance levels when considering compaction and survey accuracy.

It is considered that the re-use volumes and levels presented are reasonably similar when taking bulking and engineering factors into account. LKR consider that works carried out are compatible with and within the spirit of what was originally proposed and not significantly different.

2.7 Waste Duty of Care

Records of surplus soils and waste materials generated by LKR as part of the enabling works were maintained by LKR. During the enabling works, due to H&S restrictions associated with Covid-19, waste carrier tickets were not issued on site and were collated retrospectively.

Haulier records, licenses and re-use exemptions are included in Appendix G along with a summary table of waste destinations, volumes and types (waste tickets are held by Willmott Dixon and can be supplied on request).

As a cross check to re-use volumes and disposal of surplus from enabling works, volumes were compared to calculations based on earthworks phases and material removed from site. The volume calculations of disposal of soil material using each method were calculated as follows:

- » Haulier tickets - approximately 2,375m³ surplus.
- » Area by area volume calculations - approximately 2,229m³ surplus.
- » Earthworks phase volume calculations - approximately 2,337m³ surplus.

The slight difference in volumes (max 6%) between the three methods are readily attributable to compaction, extent of the surveys, assumptions in volumes per load and reasonable survey accuracy. The variations are not thought to be significant in the overall volume calculations

3 SUMMARY

The following is a summary of the main points included in the MMP verification report:

- » Approximately 40,053m³ of soils, relic foundations and hardstanding were re-used (compared to 31,279m³ in the original plan). This volume also included several aspects of civils construction volumes, which meant the overall difference in volumes re-used in the enabling works was approximately 3,100m³. when taking consolidation & bulking into account. The difference in volumes is attributable to design changes around finish levels and the ramp within the green strip along the north east of the site. Civils construction volumes were found to be within tolerance levels when considering compaction and bulking. Overall, it is considered that the differences are not significant within the scope and objectives of an MMP.
- » A watching brief was maintained during the earthworks and the excavated material was considered similar to that previously encountered during the Phase 2 investigation. Physical contamination such as wood, metal and brick was picked and separated. This material was limited in quantity and transferred to on-site skips for disposal.
- » Material remaining on site was considered geotechnically and chemically suitable for the project. LKR confirmed geotechnical suitability based on client specifications. The enabling works verification report confirms suitability of use is protective of human health and the environment.

LKR consider that the objectives of the Remediation Strategy (subject to 'build phase' remediation) and MMP have been met and information in this verification report adequately describes the four principles for considering re-used material on site as a non-waste under the MMP.

Appendix A – Enabling Works Verification Report (Abridged)

ENABLING WORKS VERIFICATION REPORT
For
MANCHESTER COLLEGE CAMPUS



Prepared for
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1 INTRODUCTION

1.1 The Commission

LK Remediate Limited (LKR) were commissioned by Willmott Dixon Construction Ltd (the Client) to carry out site remediation and enabling works of the Manchester College Campus development at the former Boddingtons Brewery Site (planning reference 124995/FO/2019), Great Ducie Street, Manchester.

1.2 Site Description

The site is located at Great Ducie Street, Strangeways, Manchester, M3 1PT, measures an area of approximately 0.95ha and is centred on NGR 383838E 399191N. The site location is shown on drawing CC-SHP-ZZ-XX-DR-A-1003 (P02) and the proposed site layout is shown on drawing CC-SHP-ZZ-XX-DR-A-1005 (P03) included in Appendix A.

1.3 Proposed Development

The site has been remediated to enable the development of a five-storey educational building with associated access, servicing, landscaping, public realm and other associated works following removal of a car park. The proposed site layout is shown on drawing CC-SHP-ZZ-XX-DR-A-1005 (P03) included in Appendix A.

1.4 Enabling Works Verification Report

The remediation strategy considered that the remediation works are split into 'pre-construction' (or enabling works) phase and the 'build phase' (i.e. during the development works) phase.

The scope of this verification report covers the 'pre-construction' enabling works phase, a 'post-construction' build phase verification report will also be required.

The aim of this report is to demonstrate to the Local Authority (LA) that the site has been suitably remediated to the extent that construction works may commence and the site is suitable for use (subject to regulatory approval of the 'post-construction' remediation works).

This Verification Report aims to:

- » Summarise the background to the enabling works.
- » Describe site enabling and pre-construction remediation works undertaken.
- » Describe additions and variations to works outlined in the agreed pre-construction phase of remediation works.
- » Provide an assessment of site won material earmarked for reuse in the development.
- » Describe further 'build phase' remediation works to be completed.

2 BACKGROUND

2.1 Previous Reports

The following reports have previously been issued and should be read in conjunction with this report:

- » "Former Boddingtons Brewery Phase 1 Geo-Environmental Desk Study" undertaken by Capita (reference CS/084037-P1DS Revision 01, dated November 2015).
- » "Ground Investigation Report – Manchester College" undertaken by AECOM (reference PR385460_002, dated September 2019).
- » "Remediation Strategy" undertaken by LK Remediate Ltd (reference CLR 19 1016/PD06012020, dated January 2020).

A history of the site is included in the desk study and Ground Investigation Reports and comprised a brewery and printworks from earliest historical mapping c. 1848 onwards. Mapping shows a number of tanks, boilers and abstraction wells on site. Surrounding areas comprise typical industrial land uses (print works, cotton works, hat works, iron works, etc) throughout the history of the site. The site has been cleared and has been in use as a car park from c. 2010.

2.2 Ground Conditions

Geo-environmental site investigation work was undertaken by AECOM and included a geophysical survey, 12no. boreholes with rotary coring and dynamic sampling (reference BH101-BH111 and BH109A), 22no. trial pits (reference TP101-TP109 and TP201-213), four trial trenches (TT101-TT104), and concrete cores of the retaining wall.

The geophysical survey infers several conclusions and specifically states that the geophysical data are "are suggestive of a highly complex sub-surface". Pertinent points are summarised below:

- » Presence of infilled basements and dividing walls in several areas of the site.
- » "Obvious" structural remains associated with the former boiler house, chimney and gas store in the form of concrete slabs and dividing walls are noted. Data indicates multiple layers of slabs (basement floors?). The footings for the former chimney stack appear to remain in-situ.
- » "Significant magnetic anomalies" under and close to the electrical substation and caustic storage areas in the north and possible former gas oil storage tank.
- » Some evidence for a deeply buried reinforced concrete slab to the east of the boiler house.

The AECOM report described ground conditions encountered during the site investigation as follows:

- » Ground conditions encountered during the investigation comprised made ground deposits up to 3.3mbgl. Made ground comprised cohesive and granular deposits and significant amounts of buried relict structures associated with the former site use and comprised concrete floor slabs, brick walls, etc.
- » Natural superficial deposits were encountered across the site and comprised cohesive and granular alluvial deposits and glacial till. Weathered sandstone deposits were encountered at depths of 3.8-5.2mbgl.
- » Competent sandstone bedrock was encountered at depth ranges of 3.8-8.0mbgl.

During the site investigation, visual and olfactory evidence of contamination were noted. The AECOM report states:

"Concrete was identified down to 0.44m (unproven) at three locations, WC101, WC102 and WC103 in the south east corner of the site. Made ground was identified at all other locations with inclusions of concrete, brick, metal glass, ceramic, plastic, rebar, timber, cloth, clinker, ash, metal cables, rubber, tarmac, breeze blocks.

Borehole logs record a 'very mild hydrocarbon odour from 3.4 – 3.55m' in made ground at BH105. Gravel was of brick, sandstone limestone. No other olfactory evidence was recorded.

A total of 15 samples were screened with a photoionisation detector (PID) and recorded on the borehole logs. All PID readings were <0 ppm."

Groundwater strikes were encountered in each of the boreholes within the sandstone at depths of 8-11mbgl. One groundwater strike was encountered in glacial till at 3mbgl. Subsequent groundwater level measurements were between 4.32-6.21mbgl (23.96-25.19mAOD).

2.3 Pollutant Linkages

The Remediation Strategy included an updated assessment of the Pollutant Linkages in the AECOM report.

The updated conceptual model used contaminant-pathway-receptor linkages based on guidance in CLR11¹. The aim of the conceptual model is to provide an 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 remediation work is required.

The conceptual model has identified four 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 C552².

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

A summary of the pollutant linkages considered in the remediation strategy is as follows:

-  **Pollutant Linkage 1 – Direct Contact (dermal contact with soil, ingestion of soil, inhalation of soil derived dust):** Elevated PAHs were identified in shallow made ground in one location (outside the planning boundary) and asbestos was identified in seven samples during the AECOM investigation. A low/moderate risk was considered appropriate. The updated risk assessment (considering the areas of proposed soft landscaping) recommended remediation comprising a clean environmental capping layer in soft landscaping.
-  **Pollutant Linkage 2 – Inhalation of vapours:** No evidence of potentially volatile contaminants was identified during the investigation. No risk from vapours was noted by AECOM and therefore no remediation recommended. Subject to a watching brief during enabling works, the probability is considered to be unlikely, with a medium consequence; the risk is therefore low and LKR recommend that no remediation is required.
-  **Pollutant Linkage 3 – Hazardous gas** – Following the findings of the gas monitoring undertaken by AECOM and an update of the gas risk assessment, the site was classified as Characteristic Situation 1 (CS1) and no specific gas protection measures were required.
-  **Pollutant Linkage 4 – Controlled Waters** – No significant concentrations of potentially mobile contaminants were identified. The majority of the site is covered in hardstanding or largely impermeable reengineered made ground to reduce permeability. The risk to controlled waters was considered low and no specific remediation required due. A watching brief was recommended during enabling works.

2.4 Additional Remediation Requirements

The AECOM site investigation works included a geophysical site survey and trial trenching exercise to confirm the position and status of the former abstraction wells known to have been present on site. It should be noted that the site investigation did not conclusively prove the presence or absence of any of the inferred abstraction wells and no discussion was included in the AECOM interpretative report.

LKR correspondence with the EA indicated that the location of the AECOM investigations, although based on public records and desk study, did not correspond to the EA records regarding the position of the wells.

In discussions with the EA, it was agreed that attempts to locate former abstraction wells would be made during the enabling works (i.e. trenching/ trial pits in the locations provided by EA records). Should any abstraction wells be located, then appropriate action to decommission the wells would be undertaken.

2.5 Additional Information

¹ EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.

² CIRIA (2001). "Contaminated land risk assessment: A guide to good practice". C552.

2.5.1 Waste Segregation Plan

To facilitate removal of surplus soils to an appropriate waste stream, a soil Waste Segregation Plan was produced which outlined sources of surplus material to be removed from site. The plan incorporated relevant findings of the site investigation report, soils descriptions, laboratory analysis, waste classification and management strategy.

The report was sent to waste hauliers for consideration prior to the start of material being removed from site. The objective was to ensure that surplus materials generated from site were adequately classified and managed to identify a suitable disposal route.

The waste segregation plan was implemented on site by the LKR remediation site manager.

2.5.2 Asbestos in Soils Management Plan

An Asbestos in Soils Management Plan was produced prior to start on site. The AMP included an assessment of risk posed to construction workers and members of the public during enabling works and the presence of asbestos in soils.

The report also included results of air monitoring undertaken during archaeology excavations at the site.

A copy of the AMP is included in Appendix B.

2.5.3 Material Management Plan

A Material Management Plan was produced prior to start of works on site to cover re-use of materials on site. The reuse of materials under DoW CoP³ was agreed with regulators (MCC and EA) and declaration was made (reference 21/02/2020 11:54:24). The declaration is included in Appendix C.

The MMP verification is not included in this report and will be submitted under separate cover in due course.

2.5.4 H&S Risk Assessment & Method Statement

A RAMS was produced to the satisfaction of the Client and Principal Contractor under CDM Regulations prior to the start of the enabling works. The RAMS is not considered in this report.

³ CL:AIRE (March 2011). "The Definition of Waste: Development Industry Code of Practice. Version 2".

3 PRE-CONSTRUCTION PHASE REMEDIATION & ENABLING WORKS

3.1 Scope of Work

The remediation works can be split into 'pre-construction' enabling works phase, and a 'post-construction' build phase. This verification report relates to 'pre-construction' remediation works. Additional post-construction remediation works are required to satisfy planning requirements once the main construction has been completed. A separate report should be issued to cover post construction remediation works.

The scope for the enabling and pre-construction remediation works are summarised below:

- Asbestos removal (hand pick) as required.
- Breaking out and crushing hardstanding and relic foundations.
- Earthworks including excavation of made ground to remove obstructions, cut/fill, re-engineering of soils.
- Excavation, haulage, further assessment and management of potentially impacted materials.
- Locate and decommission former abstraction wells.
- Disposal of surplus or materials unsuitable for retention on site.
- Maintain a watching brief for any previously unidentified or unexpected ground conditions or contamination.
- Placement of made ground beneath site-won rubble with trimming and compacting of surfaces to agreed levels and specifications.

Photographs were taken throughout the enabling works, a selection is presented in Appendix D.

Post construction remediation work requirements are summarised as follows:

- Provision of a suitable clean environmental cover system in gardens and soft landscaping areas.
- Verification testing of site-won and imported soils for use in clean cover system.
- Potable water pipeline risk assessment and barrier pipe (as required), with evidence of installation.

3.2 Supervision and Verification

The enabling and pre-construction remediation works were under full time supervision by a suitably qualified remediation site manager with additional support and part time supervision by a geo-environmental engineer. The site personnel maintained a watching brief for any unusual ground conditions or visual or olfactory evidence of contamination (including asbestos containing material) during the enabling works.

Suitability for use, disposal or verification testing was undertaken by the LKR geo-environmental engineer as required.

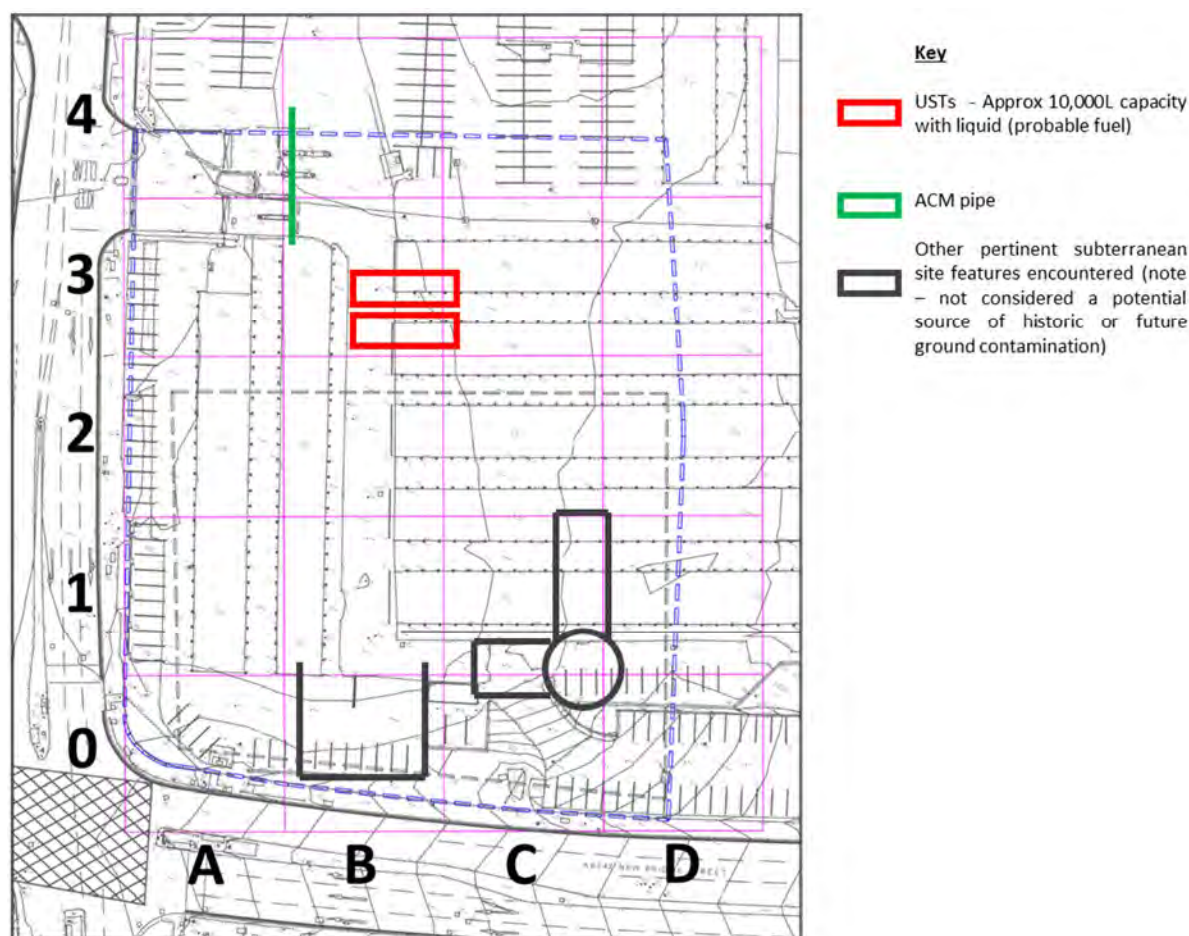
Where visible pieces of asbestos were identified, these were removed by a suitably qualified LKR engineer and disposed of by a specialist subcontractor (refer to Section 3.3) under recourse to the Asbestos in Soil Management Plan.

3.3 Watching Brief & Variation to Remediation Works

A watching brief was maintained by a suitably qualified remediation site engineer. No evidence of unexpected visual or olfactory contamination was identified during the enabling works. There were no significant variations to the remediation strategy undertaken during the enabling works.

A grid coordinate system was utilised for tracking of pertinent subterranean site features, unexpected conditions, segregation, etc during enabling works – refer to Figure 3-1 below.

Figure 3-1: On-site Grid Tracking System Showing Pertinent Site Features



Two underground storage tanks (USTs) were identified near the entranceway from Great Ducie Street and approximately located in grid square B3. Each tank was approximately 10,000L capacity and within a concrete bund. Both tanks contained concrete sand to approximately 95% capacity, with one tank containing an unknown liquid. No evidence of supporting infrastructure (pipes, etc) was identified.

No evidence of leaks or spillages were noted in the concrete bund or surrounding ground.

The USTs were emptied by a specialist subcontractor prior to removal (certificates are included in Appendix E).

Following removal of the tanks and concrete surround, soil samples from the extents of the excavation and representative contents of the concrete sand were collected and sent for laboratory analysis. Laboratory certificates are included in Appendix E.

The following soil samples were collected and analysed for a suite of contaminants including *inter alia* TPHCCWG, BTEX, MTBE, PAHs, metals, asbestos identification (including quantification as required).

- MCT01 – composite sample of UST infilling material (concrete sand) from tank.
- MA01, MA02 – samples of material from beneath the base of the UST excavation.

No potentially volatile or significantly mobile contaminants were identified above limits on detection in any of the above samples collected. No results were reported above the assessment criteria when using the conservative POS (residential) assessment criteria.

An ACM pipe measuring approximately 200mm diameter and 30m in length orientated approximately N-S was located in grid squares B3 & B4 shown below. The ACM pipe was fully exposed and removed by a fully licensed subcontractor. Disposal certificates are provided in Appendix E.

Other subterranean site features comprised numerous basements and relict foundations associated with the former brewery. Particularly of note were the former chimney base and associated basements approximately 8m deep in grid squares C&D0 to C&D1 and a large concrete basement in grid square B0. Note that no

evidence of ground contamination was associated with these features and they are not considered potential sources of historical ground contamination.

3.4 Decommissioning Abstraction Wells

As discussed in correspondence with the EA, prior to the start of the enabling works, additional investigations were undertaken in the areas around the suspected former abstraction well locations. Information and grid references provided by the EA, taken from BGS data and public records for each of the abstraction wells understood to be on site are provided in Table 3-1 below and included in Figure 3-1.

In addition to the above, the investigation locations described in the AECOM report were also specifically targeted with the watching brief during the enabling works.

Table 3-1: Summary of Abstraction Well Records Prior to Start of Enabling Works

Reference	Eastings	Northing	Elevation (mAOD)	Notes
EA BH1	383821	399192	30.38	Provided from EA records 12" diameter
EA BH2	383831	399222	25.63	Provided from EA records 16" diameter
EA BH3*	383830	399270	Unknown	Provided from EA records 12" diameter
BGS SJ8NW3263	383830	399211	Unknown	BGS record 12 1/2", 97m deep. SI Trial trench TT103 did not bottom out MG > 3.8. BGS log indicates borehole will be at about 4-4.5 deep
BGS SJ89NW198	383816	399180	Unknown	BGS record 12", 70m deep. SI TT101 concrete at 3.5mbgl (according to BGS log, it is about 4m above current ground level)
1850s 'draw well'	383819	399236	Unknown	On 1850s mapping. No further information.

Notes:

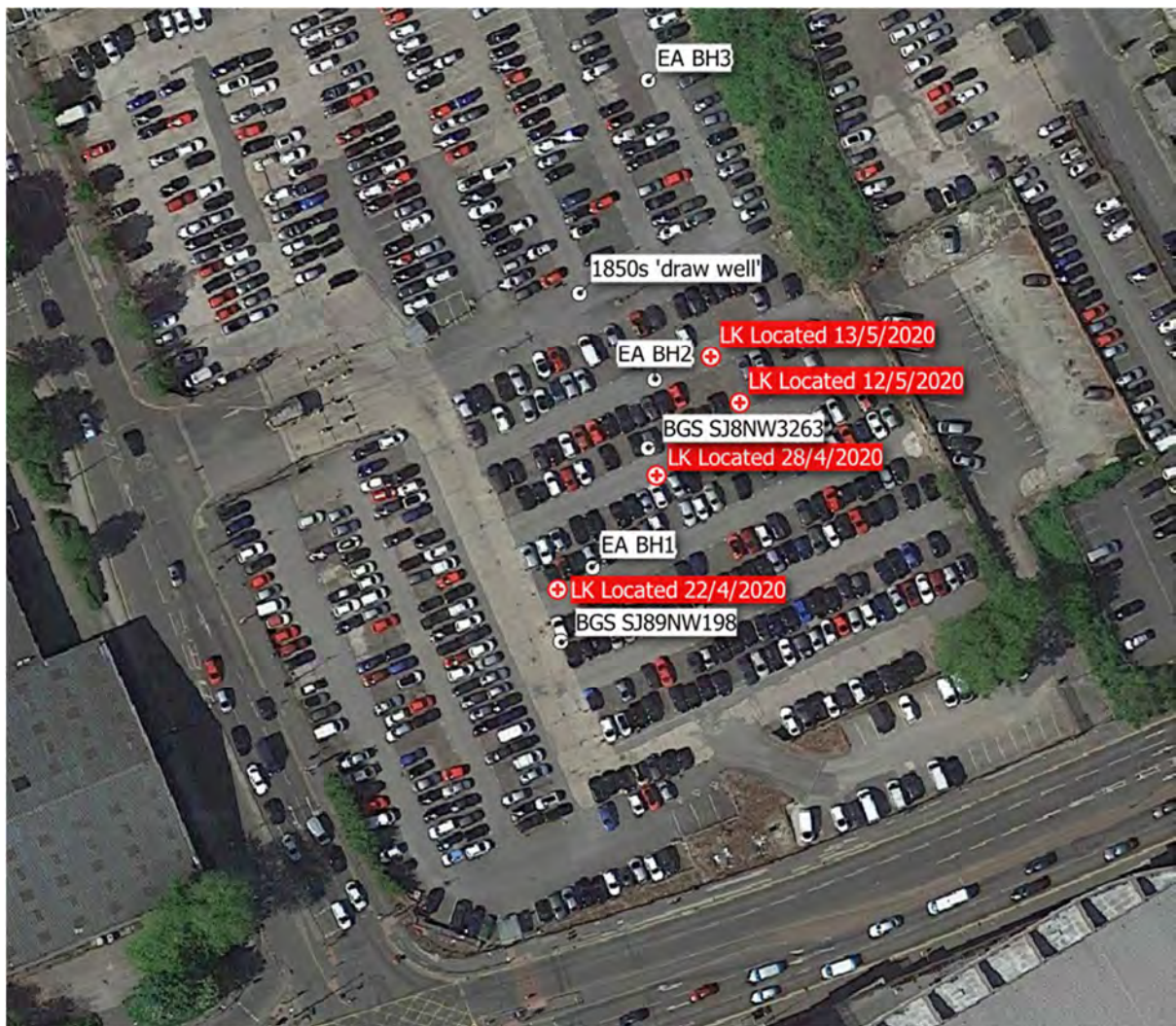
*Outside development boundary.

No evidence of abstraction wells was identified in any of the above locations.

A watching brief for the presence of abstraction wells beyond the areas described in Table 3-1 was maintained throughout the enabling works. A total of four redundant abstraction wells were located. Details are summarised as follows for each location and illustrated in Figure 3-2 below. The location and elevations were surveyed in by the Client's engineer. Decommissioning works were undertaken either same or next day following exposure of the abstraction well.

A photographic record of the abstraction well investigations and decommissioning are included in Appendix F.

Figure 3-2: Abstraction Well Locations



- » Located on 22/4/2020 at 383815.5E 399188.4N, elevation 24.84mAOD – Approximately 500mm diameter steel casing.

Groundwater was at the top of the steel casing at a similar elevation to that reported in the site investigation. Water was pumped from the well, but only approximately 2m of drawdown was achievable and the water level quickly returned to rest levels upon stopping the pump.

The well was measured to 4.8m deep with demolition rubble encountered at the base. A sample tube was hammered to the base of the well to prove refusal. We consider that the 5m depth is likely to be reflective of the base of the steel casing which is probably keyed into competent bedrock strata and represents a step change in the diameter of the borehole. The likelihood is that the borehole was either intentionally or unintentionally backfilled at least in part with rubble during the demolition of the brewery.

Approximately 1m³ of bentonite pellets was installed to create a 5m long seal within the abstraction well annulus. Care was taken to add bentonite slowly to avoid bridging in the presence of groundwater and to form a competent seal. Suitable made ground was then re-engineered above to form site levels.

- » Located on 28/4/2020 at 383831.2E 399206.6N, elevation 23.15mAOD – Approximately 2400mm diameter with no casing. The following statement was provided by the remediation site manager:

"We were digging sub-aqueously, but I believe that the crush was pretty well flush with the top of the sandstone, with a metal plate and supporting girders. The excavator operator was engaged on excavation of the 6m of mixed rubble, steel, pipes, milk crates, etc, and encountered

standing water. It was only as he continued digging that we found the sandstone (felt like concrete under the water), and then as we removed crush, the circular shaft appeared. We have removed approx. 2-2.5m of crush (demolition rubble) from the shaft. It has slowly refilled with water overnight, but it could be coming from the surrounding ground (runoff from on top of the sandstone subcrop) or up the shaft, or both."

LKR consider the 2.4m diameter encountered is likely to represent a well chamber near surface and not the full diameter of the well at depth. As per the above the likelihood is that the borehole was either intentionally or unintentionally backfilled at least in part with rubble during the demolition which is likely to have bridged the borehole at the reduction in diameter (an excavator was used to test the integrity of the infilling).

Approximately 4m³ of bentonite pellets were installed into the abstraction well to create a seal. Suitable made ground was then re-engineered above to form site levels.

- **Located on 12/5/2020 at 383844.6E 399218.2N, elevation 24.400 mAOD** – Approximately 500mm diameter. The abstraction well appeared in similar condition to the well located on 28th April. No casing was present and a wide diameter is thought likely to represent a well chamber. Demolition material was encountered at a depth of 1m from the top of the well.

Approximately 1m³ of bentonite pellets was installed into the abstraction well to create a seal to surface. Suitable made ground was then re-engineered above to form site levels.

- **Located on 13/5/2020 at 383840.0E 399225.7, elevation 24.200mAOD** – Approximately 250mm diameter. No casing present and similar condition to the previous two wells. Some metal pipework/ flanges were encountered in close proximity, but it was not clear whether these were from the abstraction well. No pipework or pumps were encountered in the well. Demolition material was within approximately 1m of the top of the well.

Approximately 1m³ of bentonite pellets was installed into the abstraction well to create a seal. Suitable made ground was then re-engineered above to form site levels.

In all instances, it was not feasible to remove the demolition rubble encountered in each of the abstraction wells. No evidence of contamination was identified in any of the above locations. The decommissioning approach described above was considered a suitable strategy protective of the Principal Aquifer based on ground conditions and development (remediated site levels made up to 29.7mAOD (i.e. ~5m) comprising reengineered and compacted suitable for use made ground. Engineered made ground ('general fill') is considered an aquiclude, with a typical permeability (k) range of between 10⁻⁶ to 10⁻⁸ (based on Figure 7.3 of Sarsby⁴), thereby reducing infiltration. Furthermore, the final development will comprise concrete hardstanding across the majority of the site.

Moreover, there were no significant potentially mobile contaminants identified during the site investigation or during enabling works and leachate testing undertaken during the site investigation identified a low risk to controlled waters.

LKR considers that as far as reasonably practicable, sufficient investigation, decommissioning and remediation of the former abstraction wells on site has been undertaken and preferential pathways to the Principal Aquifer have been removed.

3.5 Control of Water

No significant dewatering works were required during the enabling works. Small volumes of groundwater were occasionally encountered as minor seepages of discontinuous perched water within the base of granular made ground deposits. Groundwater was controlled in accordance with CIRIA Report 113⁵.

3.6 Earthworks, Segregation and Re-use

All areas of hardstanding; including buried floor slabs, historical foundations, roadways and former car parking areas were broken out and excavated to stockpile. Redundant private drainage pipes and manholes were broken out and excavated to stockpile.

⁴ Sarsby (2005). "Environmental Geotechnics".

⁵ CIRIA (1986). "Control of Groundwater for Temporary Works" REP R113.

Significant relict in-ground structures associated with the former brewery, works, terraced housing etc identified during the desk study were encountered, including areas of voiding (basements, etc). Average depths of in-ground structures were approximately 4m below existing ground level, with some areas of deeper obstructions also encountered, e.g. chimney base to 8mbgl (refer to Figure 3-2).

All artificially hard materials (concrete, brick etc.) arising from removal of hardstanding, slabs, foundations and other below ground obstructions were crushed to form suitable graded material for reuse on site to reengineer into site levels.

During processing, the suitability of crushed product was regularly checked for re-use and unsuitable elements (e.g., wood, plastics, metal, etc.) were removed and placed in skips for subsequent removal to a suitably licensed landfill site or recycling facility.

Site-won rubble was generated by crushing relic foundations, obstructions and concrete slabs and was placed in layers (approximately 500mm thick) in accordance the Client's design requirements.

The U1 Waste Exemptions, Exemption Ref: WEX232815, was issued by the Environment Agency. The exemption allowed the recovery and subsequent re-use of suitable materials as construction material and in the construction of roads.

Re-use of material was also undertaken with reference to DoW COP under a Materials Management Plan which was declared prior to the start of enabling works (reference 21/02/2020 11:54:24). A separate MMP verification will be produced and registered upon completion of pertinent aspects of the development.

A copy of the exemption certificate and MMP declaration is provided in Appendix C. A photographic record of enabling works is included in Appendix D.

3.7 Waste Management

General waste comprising, timbers, plastics, textiles, rubble and some household rubbish was generated during the enabling works. This material was segregated into appropriate waste types and removed from site by registered waste carrier to a suitably licenced landfill.

Surplus soils were managed with recourse to the waste segregation plan agreed with the waste carrier and removed from site to a suitably licenced landfill.

3.8 Assessment of Site-won Material

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 (CLR11⁶).

No site won topsoil or subsoil was produced as part of the pre-construction remediation works. Material to be used in soft landscaping will be imported and is subject to build phase verification testing requirements described in the remediation strategy report and summarised Section 4.

No evidence of significant contamination was identified during the enabling works. Although not specifically required as part of the remediation validation, nine samples of site-won crush material (MCR101-CR103, CR09-13 (note: additional samples with prefix 'CR' were for geotechnical testing and are not considered in this report) were compared against human health assessment criteria. Results from chemical analysis are included in Appendix G.

Samples were tested for the following suites of testing:

- Metals / metalloids, pH, water soluble sulphate, speciated PAHs, TPHCWG, BTEX, MTBE, SOM and asbestos screen (including identification and type, if present).

Site-won material has been assessed using criteria included in Appendix H. With regards to the soil risk assessment LKR will use the following hierarchy:

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).

⁶ EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.

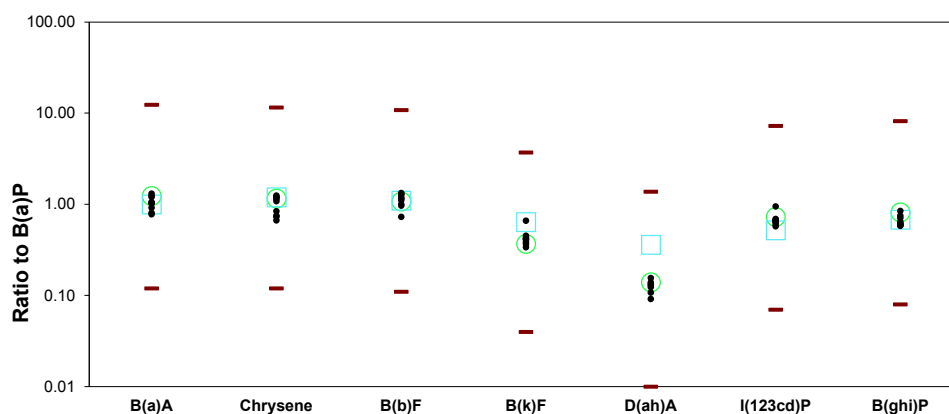
LKR consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the PAHs^{7,8} and naphthalene the most volatile and soluble⁹. The C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible¹⁰. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)¹¹ and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

All criteria have been generated using the CLEA V1.07 model¹² based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

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.*¹³, 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 3-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.

Graph 3-1: The ratio of PAH to B(a)P in soil for all for site won crush sample based on 9 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 LKR considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for this dataset.

The development is for commercial land use with some small areas of soft landscaping. Using a conservative approach, the assessment criteria for POS(resi) has been used. There were no exceedances of generic assessment criteria from any of the site won crush laboratory samples analysed and no asbestos was identified.

Based on the testing undertaken and the findings of the watching brief, the site won crush is considered suitable for use beneath roads, plots and clean cover soils. Material to be imported for soft landscaping will be subject to additional testing as part of the build phase verification works.

⁷ EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.

⁸ USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."

⁹ EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.

¹⁰ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

¹¹ HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.

¹² EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

¹³ 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.

4 CONCLUSIONS

4.1 Pre-construction Remediation & Enabling Works

The proposed site enabling and pre-construction remediation works have been carried out in accordance with the Remediation Strategy (reference CLR 19 1016/PD06012020, dated January 2020) and submitted to the Local Authority.

The watching brief was maintained by a suitably qualified remediation site manager and geo-environmental consultant. No unexpected visual or olfactory evidence of contamination was identified during the enabling works. Two Underground Storage Tanks were encountered and removed, with subsequent testing of excavations. An asbestos pipe was also encountered and removed by a suitably licensed contractor.

A watching brief specifically for the presence of the former abstraction wells was maintained throughout the enabling works. No wells were found in the locations on record; however, four abstraction wells were found in areas close by.

All the abstraction wells were found to be filled, either intentionally or not, at least in part by rubble from demolition of the former site use. In all four instances, it was not feasible to remove the infilling and the remaining borehole annuluses were filled with a bentonite pellet seal. A total of 7m³ of bentonite was used across the four locations.

Made ground was reengineered to an approximate thickness of 5m above the elevation of the abstraction wells and the final development comprises mainly hard standing. No significantly mobile contamination has been identified on site. This strategy is considered suitable to remove preferential pathways associated with the former wells and is protective of the Principal Aquifer beneath the site.

Extensive areas of relict foundations and hard materials were grubbed out and processed for re-use on site with registered EA permits and in accordance with the declared MMP under recourse to the DoW COP. Suitable hard materials were re-used on site to form site levels.

Precautionary testing of site won materials for re-use was undertaken. Materials reused on site are considered suitable for use and the site is suitable for the proposed development, subject to the recommendations and subsequent verification of the outstanding build phase remediation works detailed in remediation strategy report.

4.2 Build Phase Remediation & Verification – To be completed

Build phase remediation works are not part of this report and should be undertaken in accordance with the agreed remediation strategy report.

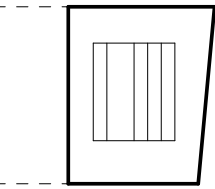
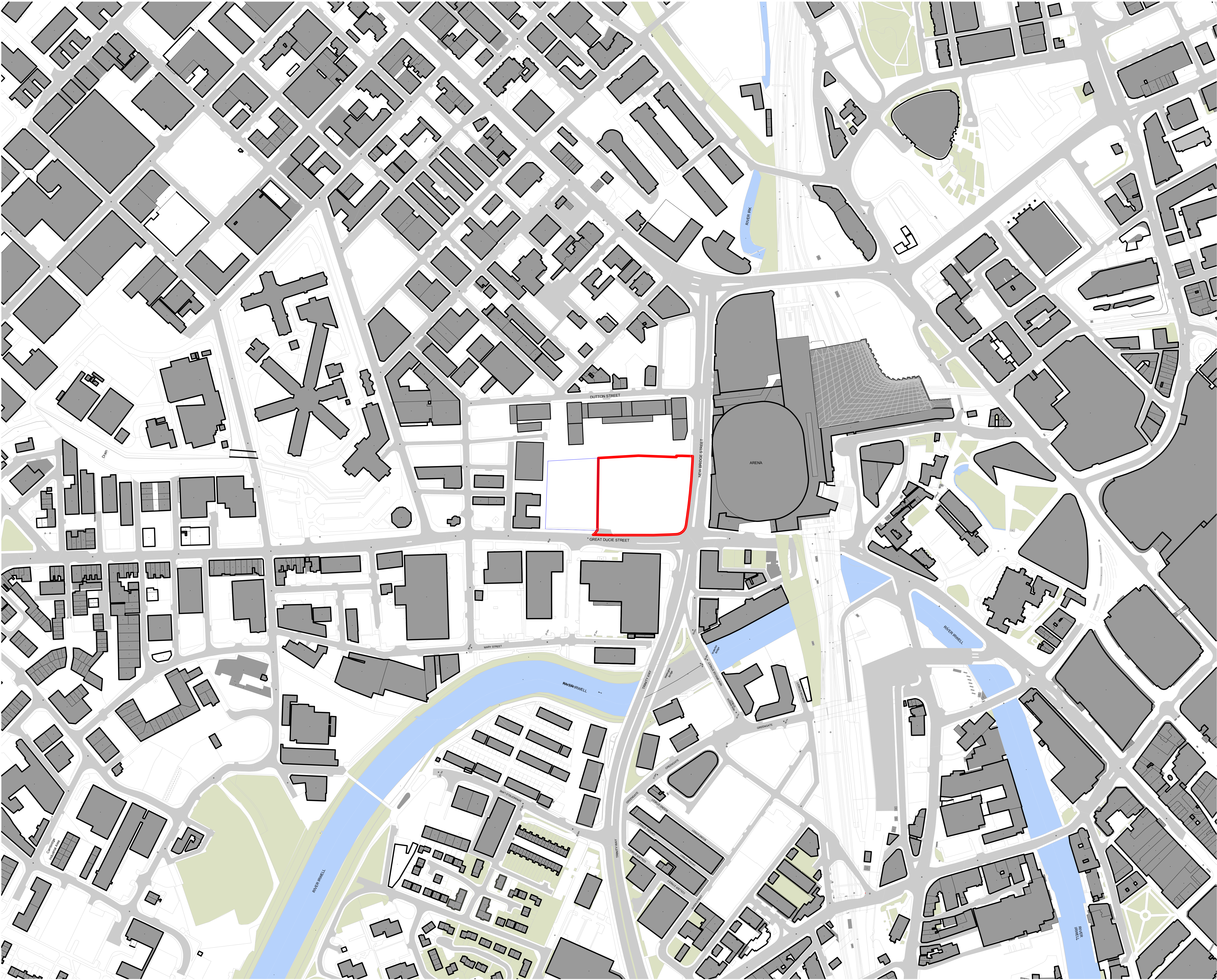
The scope of the build phase remedial works comprises:

- » Suitable Environmental Cover Layer in soft landscaping areas.
- » Potable water pipeline assessment.

The remaining 'build phase' remediation carried out on the site requires validation 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:

- » Environmental Capping Layer depth validation.
- » Validation testing of imported or site won subsoil, topsoil and physical break layer materials, as required.
- » Evidence of correct pipework installation.

Appendix A: Drawings



Notes

P02 Stage 3 issue	SHIP	SHIP	2019-10-01
P01 Stage 2+ post-VE	SHIP	SHIP	2019-08-13
rev	description	checked	drawn date

BOND BRYAN

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City Centre Project
City Centre Site
Manchester College

The Manchester College



Site Location Plan - With Future Context

project	originator	volume	level	type	role	number
CC	- SHP	- ZZ	- XX	- DR	- A	- 1003

Originator project ref
10238

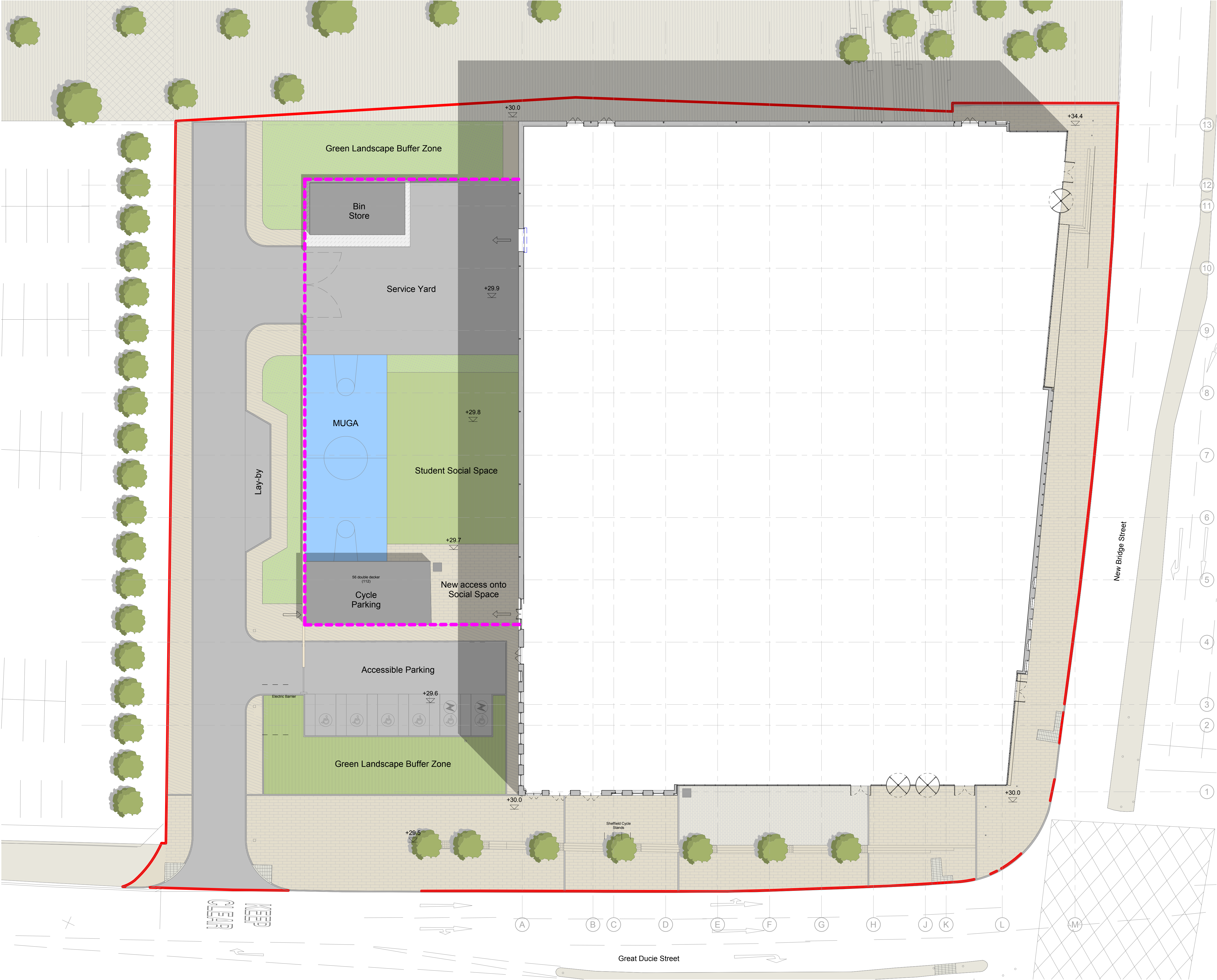
Purpose of Issue:
DESIGN

scale(s)
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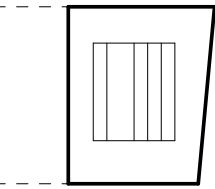
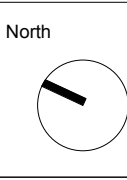
status :
S2

original paper size
A1

SUITABLE FOR INFORMATION
revision :
P02



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Notes

Key

- Application Boundary
- Ownership Boundary
- Secure Area

03	Stage 3 issue	SHP	SHP	2019-09-09
02	VE Scheme	SHP	SHP	2019-08-02
01	Stage 2+ Issue	SHP	SHP	2019-06-26
rev	description	checked	drawn	date

BOND BRYAN

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Landscaping

project	originator	volume	level	type	role	number
CC - SHP - ZZ - XX - DR - A - 1005						

Originator project ref
10238

scale(s)
1 : 200

original paper size
A1

Purpose of Issue:
DESIGN

status : **S2**

SUITABLE FOR INFORMATION

revision : **P03**

Appendix B: Asbestos Management Plan

This section intentionally removed

Appendix C: MMP Declaration & EA Exemption Records

Peter Dunn

From: Yueming Lu <yueming.lu@claire.co.uk>
Sent: 24 February 2020 16:33
To: Peter Dunn
Subject: Notification - CL:AIRE DOWCOP Verification Report production - Ref: 21/02/2020 11:54:24

Dear,

You and your organisation have recently been identified as responsible for the CL:AIRE Definition of Waste: Code of Practice project Verification Report production - see project Declaration copied below (***Not a receipt).

By the estimated date of production - see in Question 12g, the report is expected to send to us via the following link: <https://www.claire.co.uk/verification-report-upload>, or you can advise us on the same form of the revised production date and the reason for the delay.

Please be aware that until the Verification Report is received, use of the DoW CoP remains incomplete and the material could be considered an illegal deposit.

However, if you are not the appropriate person to receive this email, please let us know by replying to this email immediately.

	21/02/2020 11:54:24
Qualified Person Name	Mike Harper
Qualified Person Number	431
1. This Declaration relates to -	Site of Origin - Route A: Land affected by contamination or suspected of being affected by contamination.
2. Proposed Volumes	25,857
3a. Site of origin - name of site owner, address & contact details	The LTE Group Niall Wright Director of Estate Redevelopment Whitworth House Ashton Old Road Manchester M11 2WH E: NWright@tmc.ac.uk T: 0161 674 7165 M: 07547977875
3b. Site of origin - site name & address	Manchester College Campus Great Ducie Street, Strangeways Manchester M3 1PQ
3c. Site of origin - developer name, address & contact details	LK Remediate Ltd Eton Business Park Eton Hill Road Radcliffe Manchester M26 5ZS Tel: 0161 763 7200
4a. Donor Site - developer name, address & contact details	
4b. Donor Site - site name & address	
4c. Receiver Site - developer name, address & contact details	

4d. Receiver Site - site name & address	
5a. Soil Treatment Facility / Hub site owner / operator - name, address & contact details	
5b. EA / NRW Permit number for Mobile Treatment Plant or Fixed Soil Treatment site	
5c. Donor site - developer name, address & contact details	
5d. Donor site - name & address	
5e. Receiver site - developer name, address & contact details	
5f. Receiver site name and address	
6a. Local Authority name, address	Manchester City Council Hammerstone Road Gorton Manchester M18 8EQ
6b. Local Authority - name and contact details:	Graeme Souter (Environmental Protection Officer) Tel: 0161 234 5004 Email: g.souter@manchester.gov.uk
6c. Environment Agency / Natural Resources Wales local office address & contact details	Environment Agency - Greater Manchester, Merseyside and Cheshire Waste Enquiries Helpdesk E-mail: GMMCWasteEnquiries@environmentagency.gov.uk
7. How will payment be made	BACS
8. Who will pay the Declaration fee?	TerraConsult Ltd, Bold Business Centre, Bold Lane, Sutton St Helens, WA9 4TX Tel: 01925 291111 Lauren Burgess
9. Email address of person identified in Q8	laurenburgess@terraconsult.co.uk
10. Terms & Conditions	Person identified in Q8 has read and agreed to the Terms & Conditions.
11. Please provide a purchase order number	4897
12a. I confirm that -	I satisfy the Qualified Person requirements set out in Appendix 6 of the Definition of Waste: Development Industry Code of Practice to complete this Declaration. I have reviewed the Materials Management Plan for the above project. I have reviewed the risk assessment. I have reviewed the Remediation Strategy/Design Statement covering the above site. I have requested correspondence / documentation relating to the development and how that relates to the use of materials.
12b. Please provide a reference for the Materials Management Plan	CLR 19 1016_MCC_MMP
12c. Please provide a reference for the Risk Assessment	Risk Assessment included in Ground Investigation Report undertaken by AECOM (ref PR385460_002, dated September 2019)
12d. Please provide a reference for the Remediation Strategy or Design Statement documents.	LK Remediate, Remediation Strategy document (ref CLR 19 106/PD06012020)
12e. Please provide a reference for the Verification Plan	Detailed in Section 26 of MMP and appended to MMP.

12f. Identify the organisation and individual(s) (email address / contact details) with responsibility for producing the Verification Report	Peter Dunn LK Group Ltd Unit 29, Eton Business Park, Eton Hill Road Radcliffe Manchester M26 2ZS 0161 763 7200 07557 156 864 p.dunn@thelkgroup.com
12g. Please provide an estimated production date for the Verification Report.	27/11/2020
12h. Please reference other supporting documents as required in the MMP. e.g. as a minimum this must include - location plans, schematics, Desk Top Study, mass balance calculations, contingency arrangements, tracking system. Where these are part of another document, this should be explained here. It is recommended each item is listed.	Planning drawing CC-SHP_ZZ-XX-DR-A1091 Site Location Plan CLR 19 1016_MCC, MMP Schematic with cut and fill model LK Remediate, Remediation Strategy document (ref CLR 19 1016/PD06012020) Risk Assessment included in Ground Investigation Report undertaken by AECOM (ref PR385460_002, dated September 2019)
13a. I confirm that I have reviewed the following correspondence / documentation relating to the development and how that relates to the use of materials from:	a) The Local Authority, b) Environment Agency / NRW
13b. Please reference the correspondence with the Local Authority.	Email from Graeme Souter (Manchester City Council) to Peter Dunn (the LK Group) dated 19th February 2020. Acceptance of using the MMP for the earthworks.
13c. Please reference the correspondence with the EA / NRW.	Email from PeterDunn (the LK Group) to Carl Highton (the Environment Agency) dated 20th February 2020.
13d. Please reference the correspondence with other relevant regulatory bodies	
14a. I have reviewed the planning consent including planning conditions	Planning Reference 124995/FO/2019
14b. I have reviewed correspondence concerning the planning consent regarding the development from:	a) The Local Authority
14c. Please list correspondence reviewed in 14b.	Manchester City Council Planning reference; 124995/FO/2019, approval letter dated 1st October 2019
15. If planning consent is not required please explain why	
16. I confirm that the MMP contains the information required:-	The risk assessment assesses human health and environmental risks in relation to the proposed uses of all the materials in the MMP. The risk assessment concludes that the objectives of preventing harm to human health and pollution of the environment will be met if materials are used in the proposed manner., The Local Authority, the Environment Agency / Natural Resources Wales and other relevant environmental regulatory bodies have not objected to the proposed development / land remediation on the basis that the use of any material is likely to cause harm to human health or pollution of the environment. [This confirmation should be given regardless of whether planning consent is required for the activity. Also see paragraph 3.37 of the CoP.], The EA/NRW have not objected to the reuse of materials on

the grounds that it a.) constitutes a waste management operation or b.) has had a previous application for an environmental permit for waste recovery refused (on the grounds that the project represents waste disposal)., The project or phase to which this Declaration applies has not yet commenced; this is not a retrospective application of the DoW CoP., The project does not involve land-spreading / agricultural re-profiling.

Dr. Yueming Lu

CL:AIRE
32 Bloomsbury Street, London WC1B 3QJ
Tel: +44 (0)20 7299 4250
Web: www.claire.co.uk

Leading Sustainable Land Reuse

CL:AIRE is a Charitable Company Limited by Guarantee/Registered in England No. 3740059/Entrust Enrolment No. 119820/Registered Charity No. 1075611

Waste exemption registration WEX232815

We confirm that the details you have entered, as shown below, are now on the exemptions register. Your registration should show on the public register within 5 days.

This document is not a permit. Exemptions may have ceased or been revoked.

To check whether these exemptions are still valid, check the company's registration WEX232815 on the public register of waste exemptions:

<https://environment.data.gov.uk/public-register/view/search-waste-exemptions>

Business responsibilities

The business or organisation responsible for carrying out the exempt waste operations agrees to:

- comply with all limits on waste types and quantities
- comply with all conditions governing how waste must be stored, handled and treated
- carry out the operations without endangering human health or harming the environment

For the operations to remain exempt they must be carried out without:

- causing risk to water, air, soil, plants or animals
- causing a nuisance through noise and odours
- negatively affecting the countryside or places of special interest

In sensitive locations, extra controls may be needed over and above those set out in the exemptions to make sure this happens.

Registration details

Registration details

Reference Number	WEX232815
Date registered	14 February 2020

Exemptions

U1: Use of waste in construction	Expires on 13 February 2023
T5: Screening and blending waste	Expires on 13 February 2023

Your contact details

Your name	Richard Clarke
Your telephone number	0161 763 7200
Your email address	r.clarke@thelkgroup.com

Waste operator details

Business or organisation type	Limited company
Waste operator responsible for these waste operations	L K Remediate

Address of the Waste operator

L K GROUP
ETON BUSINESS PARK, UNIT 29
ETON HILL ROAD
RADCLIFFE
MANCHESTER
M26 2ZS

Waste operations contact**Name**

Richard Clarke

Position**Telephone number**

0161 763 7200

Email

r.clarke@thelkgroup.com

Address

L K GROUP
ETON BUSINESS PARK, UNIT 29
ETON HILL ROAD
RADCLIFFE
MANCHESTER
M26 2ZS

Waste operation details**Grid reference**

SJ 83762 99211

Site details

Former Boddington's Brewery site at junction of
Gt Ducie Street and Trinity Way

Appendix D: Enabling Works Photographic Record



Example of grubbing out of relict in-ground structures in made ground.



Example of grubbing out of relict in-ground structures in made ground.



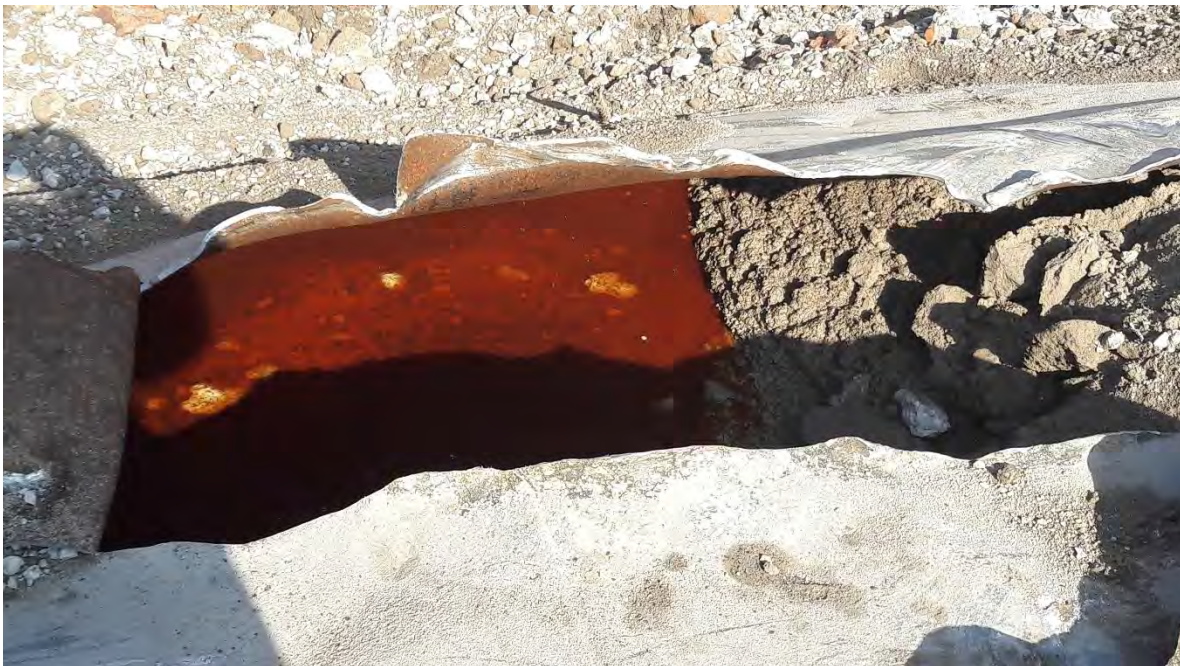
Example of relict foundations. Crusher processing hard materials is shown in foreground, with further stockpiles to rear.



Further examples of relict foundations encountered and subsequently removed during enabling works.



Underground storage tanks with concrete surround.



Underground storage tank showing opening with concrete infilling and liquid at surface.



Removal of 2no. USTs. Remains of concrete surround shown in foreground. One tank partially removed and one in-situ.



Further example of UST removal.



Remnants of concrete surrounds visible following removal of UST. No evidence of spillage/leakage identified.



Example of subterranean basement voids and relict structures encountered during enabling works.



Aerial view showing excavation of made ground, stockpiles of different materials, sorting and formation of site levels.



Aerial view showing stockpiles and formation of remediated site levels. Piling operations and materials also shown.



Aerial view showing surplus soils removed from site and remediated site levels.



Remediated site levels.

Appendix E: Subcontractor Records

This section intentionally removed

Appendix F: Abstraction Well Photographic Record



Located on 28/4/2020 at 383831.2E 399206.6N, elevation 23.15mAOD – Approximately 2400mm diameter with no casing.



4m³ of bentonite pellets being loaded into excavator bucket.



Bentonite pellets installed into abstraction well.



Located on 12/5/2020 at 383844.6E 399218.2N, elevation 24.400 mAOD – Approximately 500mm.



Bentonite ready to be installed into abstraction well.



Bentonite seal now installed. Empty bags and retracted pump shown adjacent to abstraction well.

Appendix G: Laboratory Analysis Certificates



2183



Final Report

Report No.: 20-09806-1

Initial Date of Issue: 07-Apr-2020

Client LK Consult

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

Contact(s): Dave Anderson
Dene Marland
Richard Clarke

Project CLR 19 1016 Manchester College
Campus

Quotation No.:		Date Received:	31-Mar-2020
Order No.:	CLR 19 1016	Date Instructed:	01-Apr-2020
No. of Samples:	3		
Turnaround (Wkdays):	5	Results Due:	07-Apr-2020
Date Approved:	07-Apr-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Client: LK Consult	Chemtest Job No.:				20-09806	20-09806	20-09806
Quotation No.:	Chemtest Sample ID.:				994186	994187	994188
	Client Sample ID.:				MCT01	MA01	MA02
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				30-Mar-2020	30-Mar-2020	30-Mar-2020
	Asbestos Lab:				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
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	8.1	7.6	8.9
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	NONE
Soil Texture	N	2040		N/A	Clay	Clay	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	11.9	9.9	10.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.3	0.82	0.72
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	0.51	0.49	0.79
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	9.9	14	12
Cadmium	M	2450	mg/kg	0.10	0.53	0.69	0.35
Chromium	M	2450	mg/kg	1.0	13	16	17
Copper	U	2450	mg/kg	0.50	13	59	38
Mercury	M	2450	mg/kg	0.10	< 0.10	0.42	0.41
Nickel	M	2450	mg/kg	0.50	8.8	21	23
Lead	M	2450	mg/kg	0.50	23	280	230
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	8.0	19	20
Zinc	U	2450	mg/kg	0.50	52	120	98
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.5	4.0	4.7
Fuel Type	N	2670		N/A	Diesel	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	< 1.0	< 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	20	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	28	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	3.9	110	100
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	52	110	100
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

Client: LK Consult	Chemtest Job No.:				20-09806	20-09806	20-09806
Quotation No.:	Chemtest Sample ID.:				994186	994187	994188
	Client Sample ID.:				MCT01	MA01	MA02
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				30-Mar-2020	30-Mar-2020	30-Mar-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	6.9	8.1
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	540	460
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	550	470
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	52	660	570
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	0.52	0.66
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	0.15	0.36
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	0.51	1.0
Fluorene	M	2800	mg/kg	0.10	< 0.10	0.47	1.1
Phenanthrene	M	2800	mg/kg	0.10	0.17	4.0	7.7
Anthracene	M	2800	mg/kg	0.10	< 0.10	1.0	2.5
Fluoranthene	M	2800	mg/kg	0.10	0.15	5.8	10
Pyrene	M	2800	mg/kg	0.10	0.12	5.5	9.4
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	2.4	4.2
Chrysene	M	2800	mg/kg	0.10	< 0.10	1.9	4.3
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	3.2	5.6
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	1.1	2.0
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	3.0	5.1
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	2.0	3.4
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.13	0.55
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	1.8	3.2
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	34	61
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

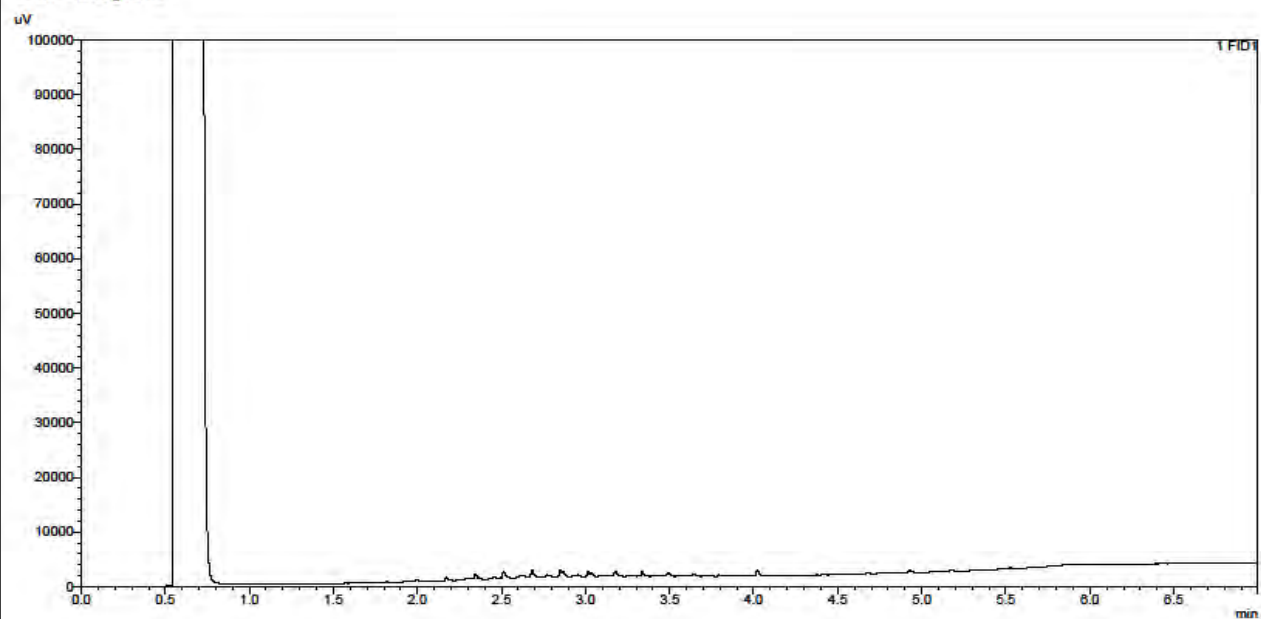
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Sample # : 7
Date Acquired : 02/04/2020 15:44:27
Date Processed : 02/04/2020



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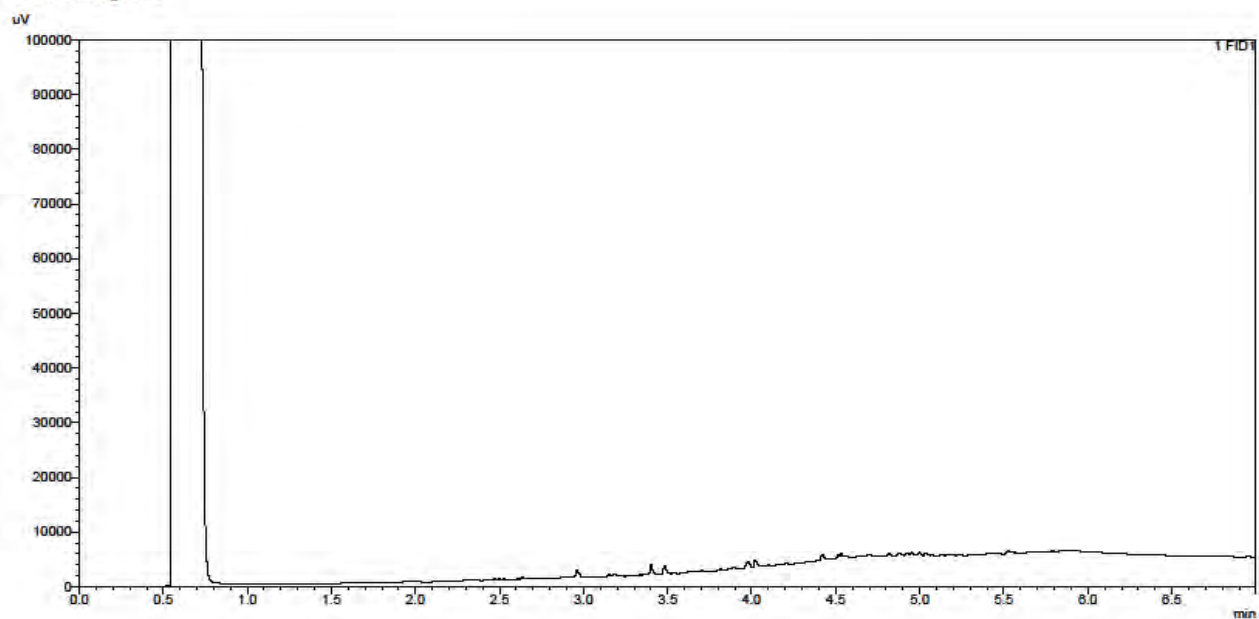
TPH Chromatogram on Soil Sample: 994187

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Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 8
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Date Processed : 02/04/2020



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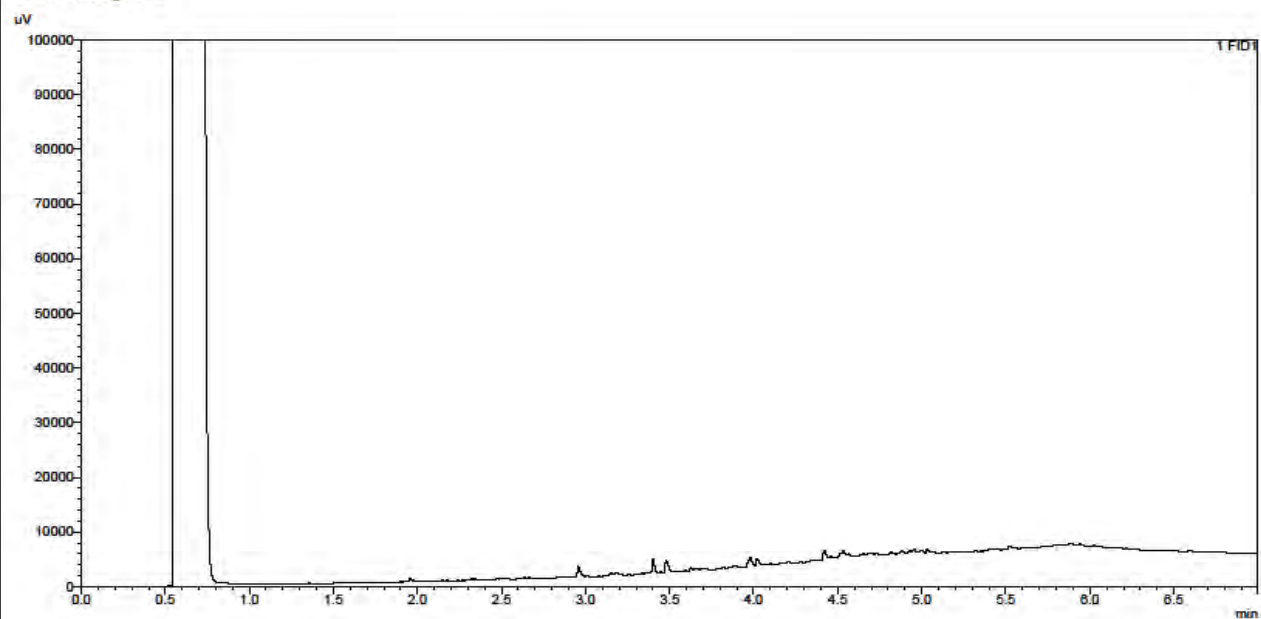
TPH Chromatogram on Soil Sample: 994188

<Sample Information>

Sample Name : 994188 20-09806
Data Filename : 02 April 2020_02042020_994188 20-09806_009.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 9
Date Acquired : 02/04/2020 16:08:50
Date Processed : 02/04/2020



<Chromatogram>



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

Report Information

Key

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

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



2183



Final Report

Report No.: 20-11517-1

Initial Date of Issue: 06-May-2020

Client LK Consult

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

Contact(s): Dave Anderson
Dene Marland
Richard Clarke

Project CLR 19 1016 Manchester College
Campus

Quotation No.:		Date Received:	01-May-2020
Order No.:	CLR 19 1016	Date Instructed:	01-May-2020
No. of Samples:	3		
Turnaround (Wkdays):	5	Results Due:	07-May-2020
Date Approved:	06-May-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Client: LK Consult	Chemtest Job No.:				20-11517	20-11517	20-11517
Quotation No.:	Chemtest Sample ID.:				1001209	1001210	1001211
	Client Sample ID.:				CR11	CR12	CR13
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				30-Apr-2020	30-Apr-2020	30-Apr-2020
	Asbestos Lab:				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
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	7.3	7.5	6.9
Soil Colour	N	2040		N/A	red	red	red
Other Material	N	2040		N/A	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	10.3	10.6	10.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.3	1.0	0.81
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.45	0.49	0.37
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	19	11	8.3
Cadmium	M	2450	mg/kg	0.10	0.32	0.25	0.22
Chromium	M	2450	mg/kg	1.0	21	17	15
Copper	M	2450	mg/kg	0.50	26	24	21
Mercury	M	2450	mg/kg	0.10	0.23	0.22	0.17
Nickel	M	2450	mg/kg	0.50	27	17	15
Lead	M	2450	mg/kg	0.50	73	83	63
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	24	19	17
Zinc	M	2450	mg/kg	0.50	140	96	78
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.8	1.2	0.83
Fuel Type	N	2670		N/A	N/A	N/A	N/A
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
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
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

Results - Soil

Client: LK Consult	Chemtest Job No.:				20-11517	20-11517	20-11517
Quotation No.:	Chemtest Sample ID.:				1001209	1001210	1001211
	Client Sample ID.:				CR11	CR12	CR13
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				30-Apr-2020	30-Apr-2020	30-Apr-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
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	0.19	0.23	0.21
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	0.24	0.42	0.23
Fluorene	M	2800	mg/kg	0.10	0.24	0.31	0.16
Phenanthrene	M	2800	mg/kg	0.10	1.5	2.9	1.5
Anthracene	M	2800	mg/kg	0.10	0.42	0.62	0.38
Fluoranthene	M	2800	mg/kg	0.10	1.6	3.0	1.6
Pyrene	M	2800	mg/kg	0.10	1.5	2.7	1.5
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.63	1.1	0.71
Chrysene	M	2800	mg/kg	0.10	0.58	0.90	0.64
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.35	1.4	0.57
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.20	0.44	0.39
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.48	1.2	0.59
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.29	0.81	0.56
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.16	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.36	0.85	0.50
Total Of 16 PAH's	N	2800	mg/kg	2.0	8.7	17	9.7
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

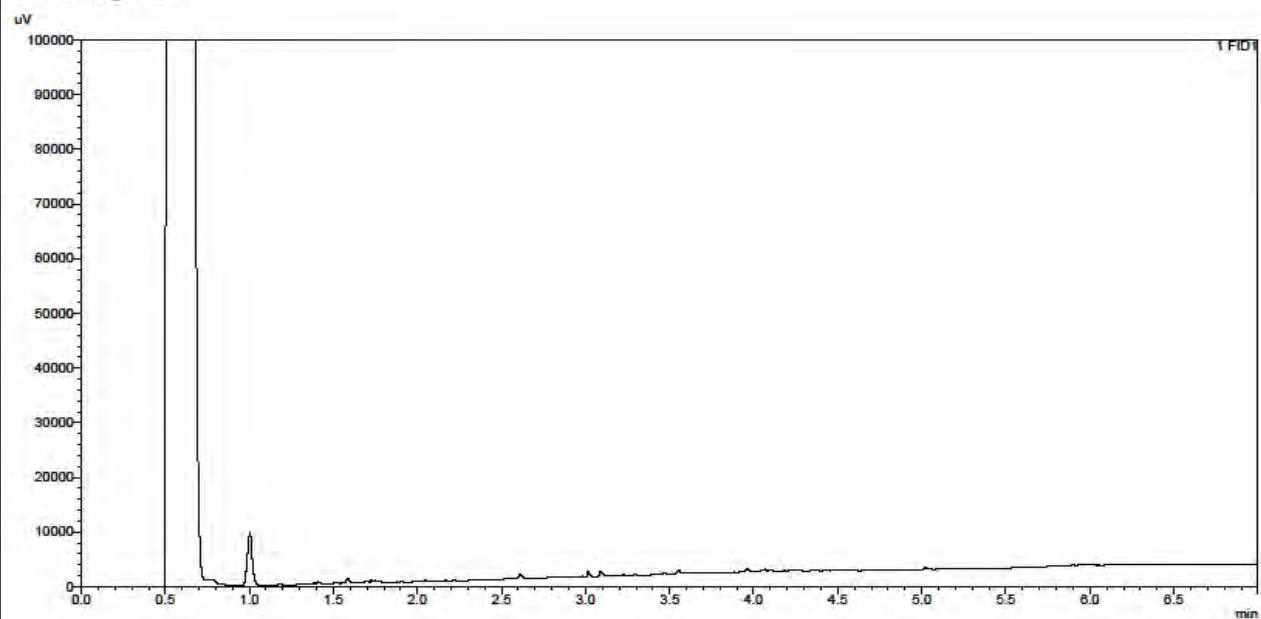
TPH Chromatogram on Soil Sample: 1001209

<Sample Information>

Sample Name : 1001209 20-11517
Data Filename : 04 May 2020_04052020_1001209 20-11517_083.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 42
Date Acquired : 04/05/2020 22:51:53
Date Processed : 04/05/2020



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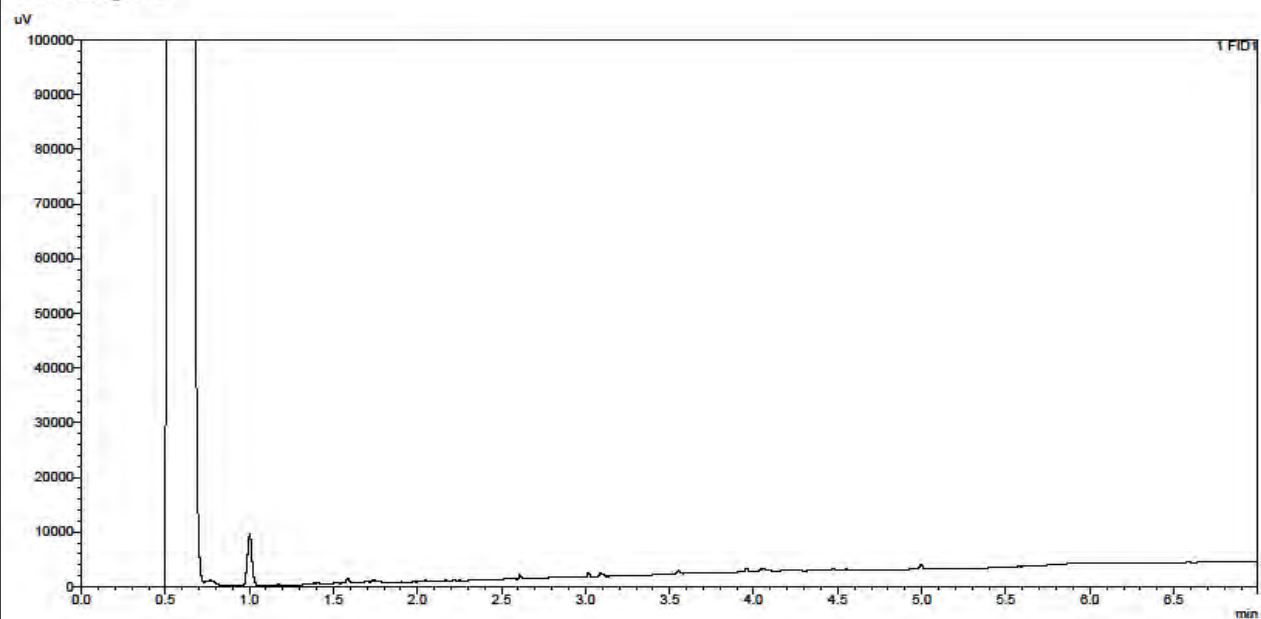
TPH Chromatogram on Soil Sample: 1001210

<Sample Information>

Sample Name : 1001210 20-11517
Data Filename : 04 May 2020_04052020_1001210 20-11517_085.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 43
Date Acquired : 04/05/2020 23:04:35
Date Processed : 04/05/2020



<Chromatogram>



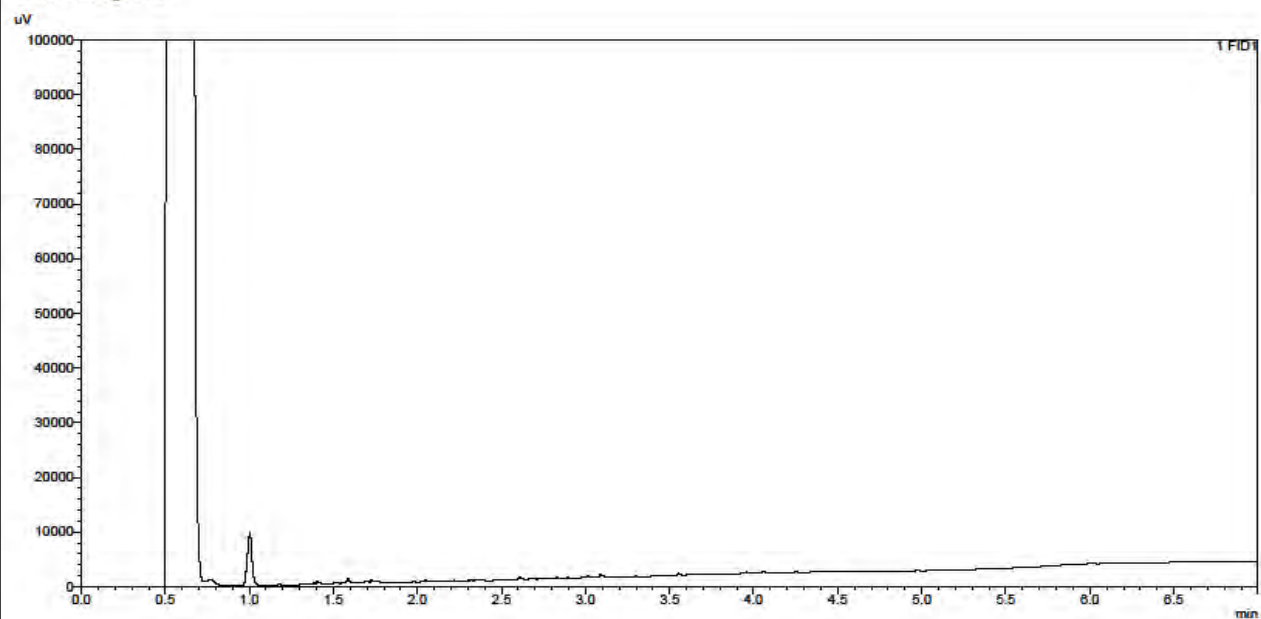
TPH Chromatogram on Soil Sample: 1001211

<Sample Information>

Sample Name : 1001211 20-11517
Data Filename : 04 May 2020_04052020_1001211 20-11517_087.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 44
Date Acquired : 04/05/2020 23:17:13
Date Processed : 04/05/2020



<Chromatogram>



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

Report Information

Key

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

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



2183



Final Report

Report No.: 20-11518-1

Initial Date of Issue: 06-May-2020

Client LK Consult

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

Contact(s): Dave Anderson
Dene Marland
Richard Clarke

Project CLR 19 1016 Manchester College
Campus

Quotation No.:		Date Received:	01-May-2020
Order No.:	CLR 19 1016	Date Instructed:	01-May-2020
No. of Samples:	3		
Turnaround (Wkdays):	5	Results Due:	07-May-2020
Date Approved:	06-May-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Client: LK Consult	Chemtest Job No.:				20-11518	20-11518	20-11518
Quotation No.:	Chemtest Sample ID.:				1001212	1001213	1001214
	Client Sample ID.:				CR08	CR09	CR10
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				28-Apr-2020	28-Apr-2020	28-Apr-2020
	Asbestos Lab:				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
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	6.2	5.9	6.3
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and brick	Stones and brick	Stones and brick
Soil Texture	N	2040		N/A	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	11.4	11.5	11.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.84	0.61	0.92
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.48	0.38	0.54
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	15	10	11
Cadmium	M	2450	mg/kg	0.10	0.37	0.32	0.30
Chromium	M	2450	mg/kg	1.0	18	16	20
Copper	M	2450	mg/kg	0.50	29	18	27
Mercury	M	2450	mg/kg	0.10	0.21	0.14	0.19
Nickel	M	2450	mg/kg	0.50	17	14	18
Lead	M	2450	mg/kg	0.50	170	120	140
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	20	17	20
Zinc	M	2450	mg/kg	0.50	200	170	190
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.5	0.98	1.5
Fuel Type	N	2670		N/A	PAH/H.OIL	N/A	PAH/H.OIL
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	36
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	64	< 1.0	280
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	64	< 5.0	320
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

Client: LK Consult	Chemtest Job No.:				20-11518	20-11518	20-11518
Quotation No.:	Chemtest Sample ID.:				1001212	1001213	1001214
	Client Sample ID.:				CR08	CR09	CR10
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				28-Apr-2020	28-Apr-2020	28-Apr-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
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	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	13
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	120	< 1.0	480
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	120	< 5.0	500
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	190	< 10	810
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	0.82	0.40	1.8
Acenaphthylene	N	2800	mg/kg	0.10	0.39	< 0.10	0.99
Acenaphthene	M	2800	mg/kg	0.10	1.2	0.74	3.1
Fluorene	M	2800	mg/kg	0.10	0.90	0.56	1.6
Phenanthrene	M	2800	mg/kg	0.10	5.5	4.1	14
Anthracene	M	2800	mg/kg	0.10	1.3	1.0	3.0
Fluoranthene	M	2800	mg/kg	0.10	4.4	3.6	11
Pyrene	M	2800	mg/kg	0.10	4.1	3.3	11
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.8	1.5	4.8
Chrysene	M	2800	mg/kg	0.10	2.0	1.5	5.4
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.2	1.6	5.5
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.77	0.46	1.9
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.7	1.2	4.7
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.1	0.77	2.7
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.22	0.11	0.58
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.0	0.77	2.8
Total Of 16 PAH's	N	2800	mg/kg	2.0	29	22	75
Total Phenols	M	2920	mg/kg	0.30	0.74	0.35	0.55

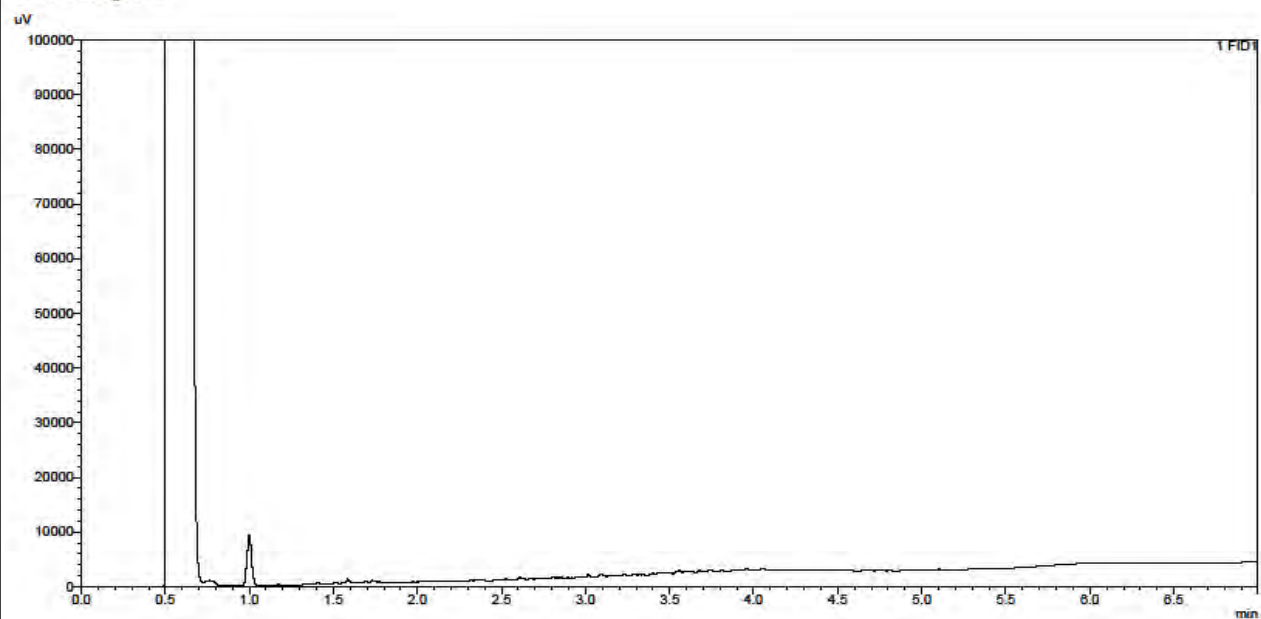
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Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 45
Date Acquired : 04/05/2020 23:29:54
Date Processed : 04/05/2020



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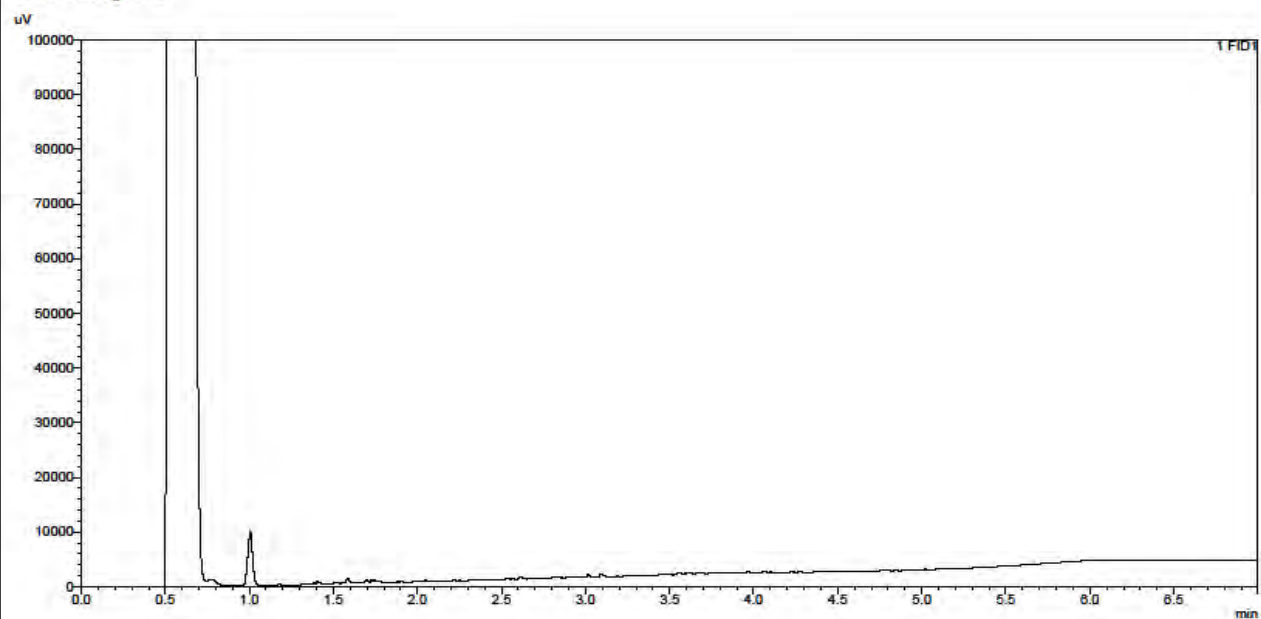
TPH Chromatogram on Soil Sample: 1001213

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Sample Name : 1001213 20-11518
Data Filename : 04 May 2020_04052020_1001213 20-11518_095.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 48
Date Acquired : 05/05/2020 00:08:00
Date Processed : 05/05/2020



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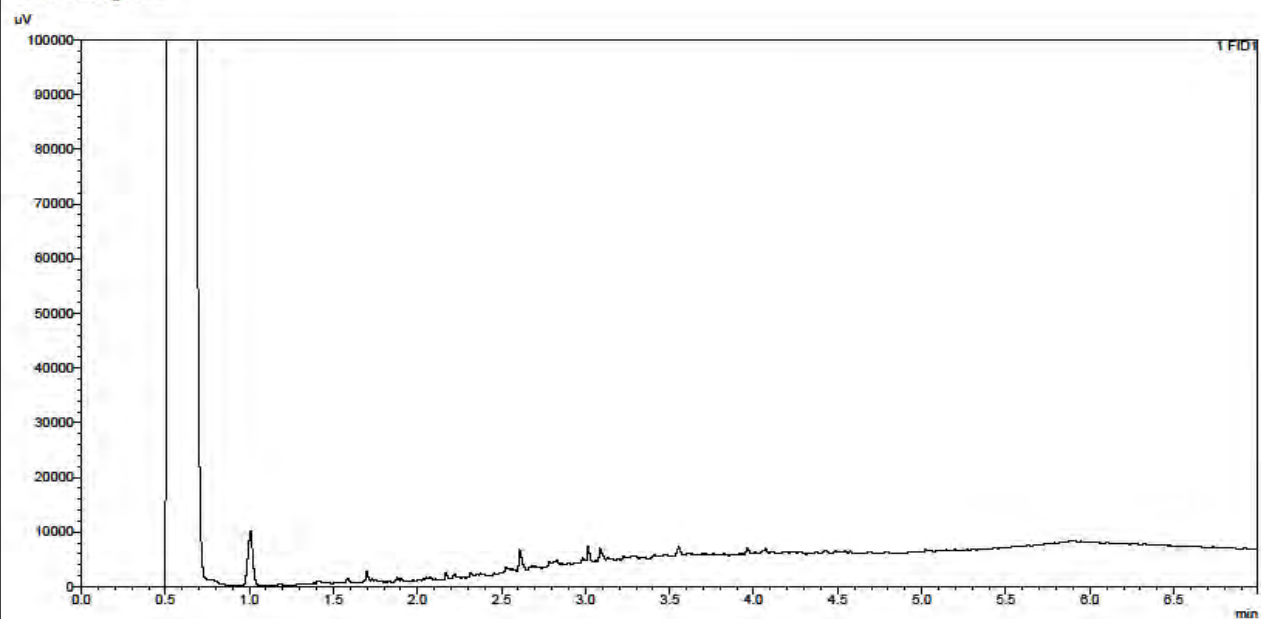
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Sample Name : 1001214 20-11518
Data Filename : 04 May 2020_04052020_1001214 20-11518_097.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 49
Date Acquired : 05/05/2020 00:20:37
Date Processed : 05/05/2020



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

Report Information

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- > "greater than"

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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



2183



Final Report

Report No.: 20-09683-1

Initial Date of Issue: 06-Apr-2020

Client LK Consult

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

Contact(s): Dene Marland
Dave Anderson
Richard Clarke

Project CLR 19 1016 Manchester College
Campus

Quotation No.:		Date Received:	30-Mar-2020
Order No.:	CLR 19 1016	Date Instructed:	30-Mar-2020
No. of Samples:	3		
Turnaround (Wkdays):	5	Results Due:	03-Apr-2020
Date Approved:	06-Apr-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Client: LK Consult	Chemtest Job No.:				20-09683	20-09683	20-09683
Quotation No.:	Chemtest Sample ID.:				993483	993484	993485
	Client Sample ID.:				MCR01	MCR02	MCR03
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				27-Mar-2020	27-Mar-2020	27-Mar-2020
	Asbestos Lab:				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
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	8.8	8.4	7.4
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	10.6	11.2	11.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.51	0.51	0.56
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	0.90	1.0	0.86
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	0.70	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	14	18	15
Cadmium	M	2450	mg/kg	0.10	0.33	0.39	0.33
Chromium	M	2450	mg/kg	1.0	25	24	20
Copper	U	2450	mg/kg	0.50	31	33	25
Mercury	M	2450	mg/kg	0.10	0.32	0.37	0.31
Nickel	M	2450	mg/kg	0.50	30	25	21
Lead	M	2450	mg/kg	0.50	170	180	140
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	16	18	15
Zinc	U	2450	mg/kg	0.50	110	110	88
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.3	2.6	3.3
Fuel Type	N	2670		N/A	PAH	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	< 1.0	< 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
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	65	< 1.0	67
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	65	< 5.0	67
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	2.7	< 1.0

Client: LK Consult	Chemtest Job No.:				20-09683	20-09683	20-09683
Quotation No.:	Chemtest Sample ID.:				993483	993484	993485
	Client Sample ID.:				MCR01	MCR02	MCR03
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				27-Mar-2020	27-Mar-2020	27-Mar-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	8.0	13	9.3
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	140	69	180
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	140	85	180
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	210	85	250
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	0.97	1.3	0.41
Acenaphthylene	N	2800	mg/kg	0.10	0.13	0.13	0.10
Acenaphthene	M	2800	mg/kg	0.10	0.57	2.0	0.35
Fluorene	M	2800	mg/kg	0.10	0.42	1.3	0.32
Phenanthrene	M	2800	mg/kg	0.10	4.0	8.0	2.5
Anthracene	M	2800	mg/kg	0.10	0.85	2.1	0.66
Fluoranthene	M	2800	mg/kg	0.10	5.0	8.1	3.3
Pyrene	M	2800	mg/kg	0.10	4.4	6.7	3.1
Benzo[a]anthracene	M	2800	mg/kg	0.10	2.1	3.2	1.4
Chrysene	M	2800	mg/kg	0.10	1.9	2.6	1.2
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.6	3.9	2.0
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.88	1.3	0.78
Benzo[a]pyrene	M	2800	mg/kg	0.10	2.6	3.1	1.8
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.8	2.0	1.2
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.28	0.43	0.28
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.6	1.8	1.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	30	48	21
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

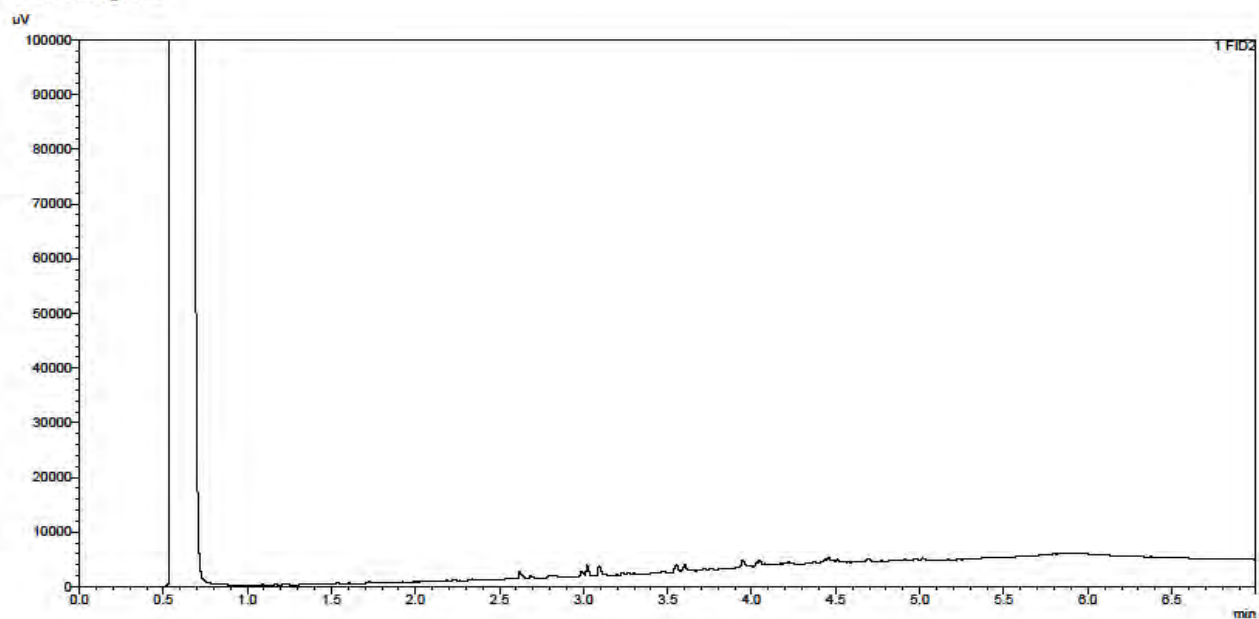
TPH Chromatogram on Soil Sample: 993483

<Sample Information>

Sample Name : 993483 20-09683
Data Filename : 31 March 2020_31032020_993483 20-09683_040.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 95
Date Acquired : 31/03/2020 18:37:57
Date Processed : 31/03/2020



<Chromatogram>



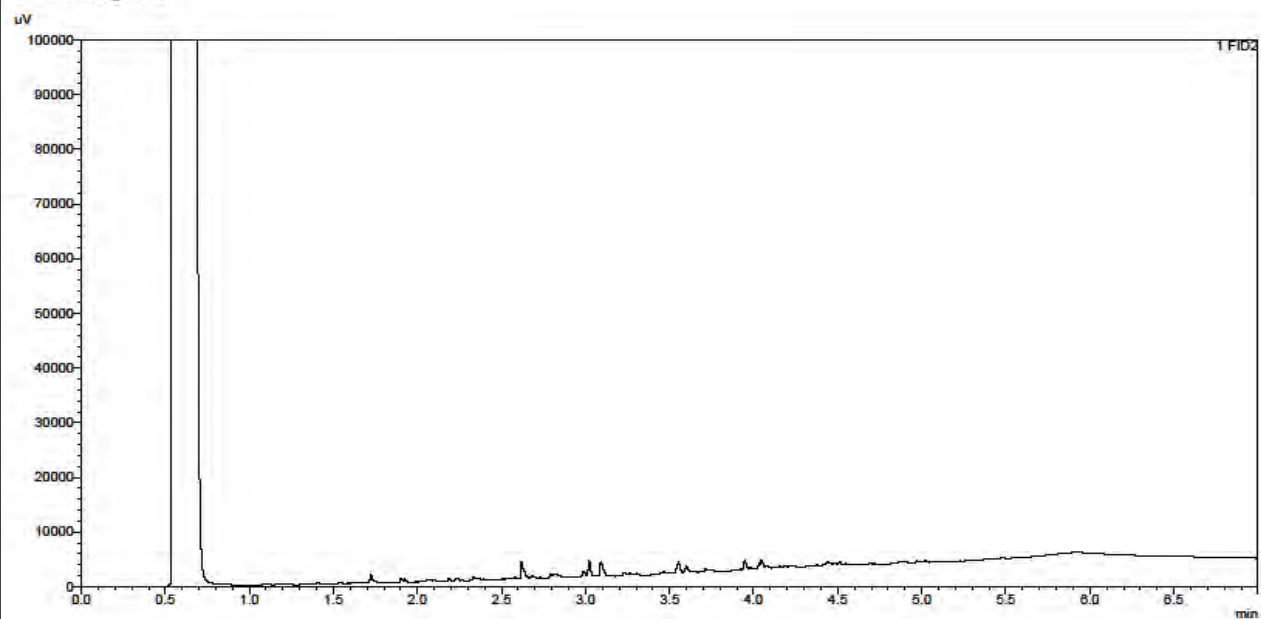
TPH Chromatogram on Soil Sample: 993484

<Sample Information>

Sample Name : 993484 20-09683
Data Filename : 31 March 2020_31032020_993484 20-09683_042.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 96
Date Acquired : 31/03/2020 18:50:43
Date Processed : 31/03/2020



<Chromatogram>



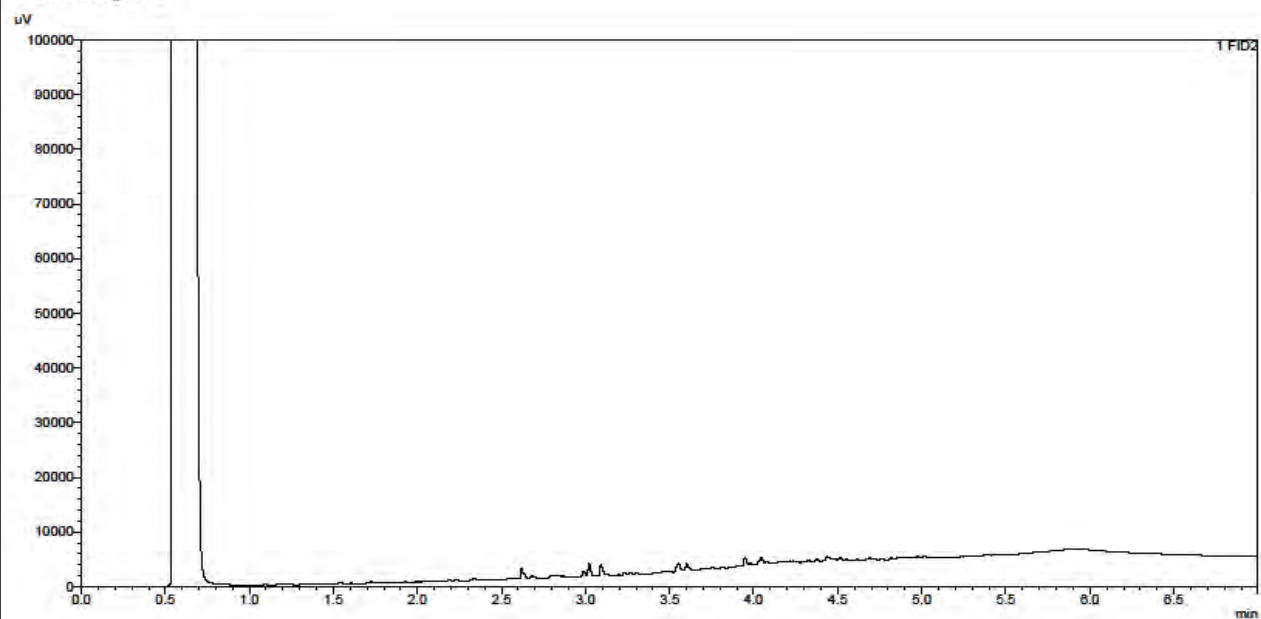
TPH Chromatogram on Soil Sample: 993485

<Sample Information>

Sample Name : 993485 20-09683
Data Filename : 31 March 2020_31032020_993485 20-09683_044.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 97
Date Acquired : 31/03/2020 18:03:35
Date Processed : 31/03/2020



<Chromatogram>



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

Report Information

Key

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

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)
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Sample Retention and Disposal

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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 H: Generic Assessment Criteria

This section intentionally removed

Based across the UK with
offices in Manchester,
London, Liverpool and Glasgow.

Manchester (Head Office)

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

t: 0161 763 7200
e: info@thelkgroup.com

London

Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



- » Geotechnical
- » Contaminated Land
- » Flood Risk and Drainage
- » Asbestos
- » Invasive Species
- » Land Remediation
- » Project Management
- » Land Drilling

Appendix B – MMP Declaration

From: Yueming Lu [<mailto:yueming.lu@claire.co.uk>]
Sent: 24 February 2020 16:33
To: Mike Harper; Waste Exemptions
Subject: CL:AIRE Def. of Waste Code of Practice Declaration - 21/02/2020 11:54:24

Thank you for your recent submission of a Definition of Waste: Development Industry Code of Practice Declaration (DoW CoP).

This Declaration will be submitted to the Environment Agency / Natural Resources Wales under the DoW CoP.

You are reminded that if materials are not used in accordance with the Materials Management Plan or risk assessment or if it is discovered that materials were not suitable for use, were used in excessive quantity or in such a manner as to harm human health or pollute the environment, the Environment Agency / Natural Resources Wales may conclude that those materials were discarded and were waste. Please note <https://www.gov.uk/government/publications/landfill-tax-disposals-not-made-at-landfill-sites/landfill-tax-disposals-not-made-at-landfill-sites>.

You are also reminded that a Verification Report must be prepared on completion of the work as set out in the Remediation Strategy / Design Statement covering the site. This Verification Report must be provided to the Environment Agency / Natural Resources Wales upon request.

This acknowledgement email relates to the following Declaration

	21/02/2020 11:54:24
Qualified Person Name	Mike Harper
Qualified Person Number	431
1. This Declaration relates to -	Site of Origin - Route A: Land affected by contamination or suspected of being affected by contamination.
2. Proposed Volumes	25,857
3a. Site of origin - name of site owner, address & contact details	The LTE Group Niall Wright Director of Estate Redevelopment Whitworth House Ashton Old Road Manchester M11 2WH E: NWright@tmc.ac.uk T: 0161 674 7165 M: 07547977875
3b. Site of origin - site name & address	Manchester College Campus Great Ducie Street, Strangeways Manchester M3 1PQ
3c. Site of origin - developer name, address & contact details	LK Remediate Ltd Eton Business Park Eton Hill Road Radcliffe Manchester M26 5ZS Tel: 0161 763 7200
4a. Donor Site - developer name, address & contact details	

4b. Donor Site - site name & address	
4c. Receiver Site - developer name, address & contact details	
4d. Receiver Site - site name & address	
5a. Soil Treatment Facility / Hub site owner / operator - name, address & contact details	
5b. EA / NRW Permit number for Mobile Treatment Plant or Fixed Soil Treatment site	
5c. Donor site - developer name, address & contact details	
5d. Donor site - name & address	
5e. Receiver site - developer name, address & contact details	
5f. Receiver site name and address	
6a. Local Authority name, address	Manchester City Council Hammerstone Road Gorton Manchester M18 8EQ
6b. Local Authority - name and contact details:	Graeme Souter (Environmental Protection Officer) Tel: 0161 234 5004 Email: g.souter@manchester.gov.uk
6c. Environment Agency / Natural Resources Wales local office address & contact details	Environment Agency - Greater Manchester, Merseyside and Cheshire Waste Enquiries Helpdesk E-mail: GMMCWasteEnquiries@environmentagency.gov.uk
7. How will payment be made	BACS
8. Who will pay the Declaration fee?	TerraConsult Ltd, Bold Business Centre, Bold Lane, Sutton St Helens, WA9 4TX Tel: 01925 291111 Lauren Burgess
9. Email address of person identified in Q8	laurenburgess@terraconsult.co.uk
10. Terms & Conditions	Person identified in Q8 has read and agreed to the Terms & Conditions.
11. Please provide a purchase order number	4897
12a. I confirm that -	I satisfy the Qualified Person requirements set out in Appendix 6 of the Definition of Waste: Development Industry Code of Practice to complete this Declaration. I have reviewed the Materials Management Plan for the above project. I have reviewed the risk

	assessment. I have reviewed the Remediation Strategy/Design Statement covering the above site. I have requested correspondence / documentation relating to the development and how that relates to the use of materials.
12b. Please provide a reference for the Materials Management Plan	CLR 19 1016_MCC_MMP
12c. Please provide a reference for the Risk Assessment	Risk Assessment included in Ground Investigation Report undertaken by AECOM (ref PR385460_002, dated September 2019)
12d. Please provide a reference for the Remediation Strategy or Design Statement documents.	LK Remediate, Remediation Strategy document (ref CLR 19 106/PD06012020)
12e. Please provide a reference for the Verification Plan	Detailed in Section 26 of MMP and appended to MMP.
12f. Identify the organisation and individual(s) (email address / contact details) with responsibility for producing the Verification Report	Peter Dunn LK Group Ltd Unit 29, Eton Business Park, Eton Hill Road Radcliffe Manchester M26 2ZS 0161 763 7200 07557 156 864 p.dunn@thelkgroup.com
12g. Please provide an estimated production date for the Verification Report.	27/11/2020
12h. Please reference other supporting documents as required in the MMP. e.g. as a minimum this must include - location plans, schematics, Desk Top Study, mass balance calculations, contingency arrangements, tracking system. Where these are part of another document, this should be explained here. It is recommended each item is listed.	Planning drawing CC-SHP_ZZ-XX-DR-A1091 Site Location Plan CLR 19 1016_MCC, MMP Schematic with cut and fill model LK Remediate, Remediation Strategy document (ref CLR 19 1016/PD06012020) Risk Assessment included in Ground Investigation Report undertaken by AECOM (ref PR385460_002, dated September 2019)
13a. I confirm that I have reviewed the following correspondence / documentation relating to the development and how that relates to the use of materials from:	a) The Local Authority, b) Environment Agency / NRW
13b. Please reference the correspondence with the Local Authority.	Email from Graeme Souter (Manchester City Council) to Peter Dunn (the LK Group) dated 19th February 2020. Acceptance of using the MMP for the earthworks.

13c. Please reference the correspondence with the EA / NRW.	Email from PeterDunn (the LK Group) to Carl Highton (the Environment Agency) dated 20th February 2020.
13d. Please reference the correspondence with other relevant regulatory bodies	
14a. I have reviewed the planning consent including planning conditions	Planning Reference 124995/FO/2019
14b. I have reviewed correspondence concerning the planning consent regarding the development from:	a) The Local Authority
14c. Please list correspondence reviewed in 14b.	Manchester City Council Planning reference; 124995/FO/2019, approval letter dated 1st October 2019
15. If planning consent is not required please explain why	
16. I confirm that the MMP contains the information required:-	The risk assessment assesses human health and environmental risks in relation to the proposed uses of all the materials in the MMP. The risk assessment concludes that the objectives of preventing harm to human health and pollution of the environment will be met if materials are used in the proposed manner., The Local Authority, the Environment Agency / Natural Resources Wales and other relevant environmental regulatory bodies have not objected to the proposed development / land remediation on the basis that the use of any material is likely to cause harm to human health or pollution of the environment. [This confirmation should be given regardless of whether planning consent is required for the activity. Also see paragraph 3.37 of the CoP.], The EA/NRW have not objected to the reuse of materials on the grounds that it a.) constitutes a waste management operation or b.) has had a previous application for an environmental permit for waste recovery refused (on the grounds that the project represents waste disposal)., The project or phase to which this Declaration applies has not yet commenced; this is not a retrospective application of the DoW CoP., The project does not involve land-spreading / agricultural re-profiling.

CL:AIRE
32 Bloomsbury Street, London WC1B 3QJ
Tel: +44 (0)20 7299 4250
Web: www.claire.co.uk

Leading Sustainable Land Reuse

CL:AIRE is a Charitable Company Limited by Guarantee/Registered in England No. 3740059/Entrust Enrolment No. 119820/Registered Charity No. 1075611

Appendix C – BEMS MMP Records (as supplied)

Appendix A

Volume Change from LK Handover to Mayo Works as at 17/7/2020

	Uncompacted Vol	Equiv Compacted Vol *	CUT/FILL
1) Actual Import/Export which would produce a volume change			
1a) Total Export from site by Mayo since start on site	2568 cu.m	2140 cu.m	
1b) Total concrete Import by Mayo in same time	680 cu.m	680 cu.m	
1c) Total Site Volume Change due to import/export	1888 cu.m	<u>1460 cu.m</u>	CUT
2) Theoretical volume change From Surveys			
<u>From Surveys</u>			
2a) Surveyed Volume Change from Handover to 17/7/20 - Drawing MMP003**		264 cu.m	CUT
<u>From records of buried works</u>			
2b) Works beneath access road surfaced during early Mayo works (Assessed by surveying top of existing base course and reducing levels by construction thickness of 250mm)		775 cu.m	CUT
2c) Drainage cut, replaced with pipes, manholes and pipe bedding **		297 cu.m	CUT
2d) Total Theoretical Volume Change		<u>1336 cu.m</u>	CUT
Error between actual Import/Export and Theoretical Volume Change (Difference between items 1c and 2d)		124 cu.m	
Percentage error in comparison to total cut/fill volumes		<u>8.49%</u>	OK

* 20% Compaction factor applied

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AECOM

PROJECT

MANCHESTER COLLEGE
LTE CITY CENTRE

CLIENT

THE MANCHESTER COLLEGE

CONSULTANT

AECOM Ltd.
Bridgewater House
58-60 Whitworth Street
Manchester, M1 6LT.
+44 (0)161 907 3500 tel www.aecom.com

NOTES

- DO NOT SCALE FROM THIS DRAWING. ONLY STATED DIMENSIONS ARE TO BE USED.
- ALL SEWERS, MANHOLES AND ANCILLARIES ARE TO BE CONSTRUCTED IN LINE WITH THE SPECIFICATION AND DETAILS IN 'SEWERS FOR ADOPTION, 7th EDITION'.
- ALL PIPES ARE TO BE POLYPROPYLENE STRENGTH CLASS SN8. ALL PIPES SHALL HAVE FLEXIBLE JOINTS.
- BEDDING TO ALL PIPES SHALL BE CLASS S1 TO EN 1295-1.
- ALL MANHOLES AND ACCESS CHAMBERS SHALL BE PRE-CAST CONCRETE.
- COLLECTION OF SURFACE WATER RUNOFF IS TO BE VIA A PROPRIETARY KERB CHANNEL SYSTEM. ALL OUTLETS FROM THE CHANNEL SYSTEM ARE TO HAVE A SUITABLE SUMP TO PREVENT ACCESS OF SEDIMENT INTO THE SYSTEM.
- ALL COVERS ARE TO BE DUCTILE IRON TO BS 12A. ALL INTERNAL MANHOLES SHALL BE DOUBLE SEALED AND RECESSED TO BE ABLE TO TAKE THE SURROUNDING FLOOR FINISH. LOAD CLASSES SHALL BE AS FOLLOWS:
 - INTERNAL - A15
 - EXTERNAL FOOTPATH - B125
 - VEHICLE AREAS - D400
- WHERE PRODUCT NAMES HAVE BEEN PROVIDED THEY ARE INDICATIVE FOR PRICING ONLY.
- THE ATTENUATION VOLUMES SHOWN ON THIS DRAWING ARE BASED ON THE OUTFALL DISCHARGE RATE BEING RESTRICTED TO A BROWN FIELD RATE OF 50% BETTERMENT OF EXISTING DISCHARGE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH MH SCHEDULE CC-ACM-PH1-XX-DR-D-0001.
- THIS DRAWING HAS BEEN COORDINATED WITH THE LATEST VIBRO-STONE COLUMN LAYOUT.

STAGE 5

AS BUILT
DRAINAGE
TO 17/7/20

CD	17/03/20	STAGE 5 ISSUE
MD	28/02/20	STAGE 5 ISSUE
CD	28/02/20	STAGE 5 ISSUE
VR	DATE	DESCRIPTION

SUITABILITY STATUS

A1 - Suitable for Construction

PROJECT NUMBER

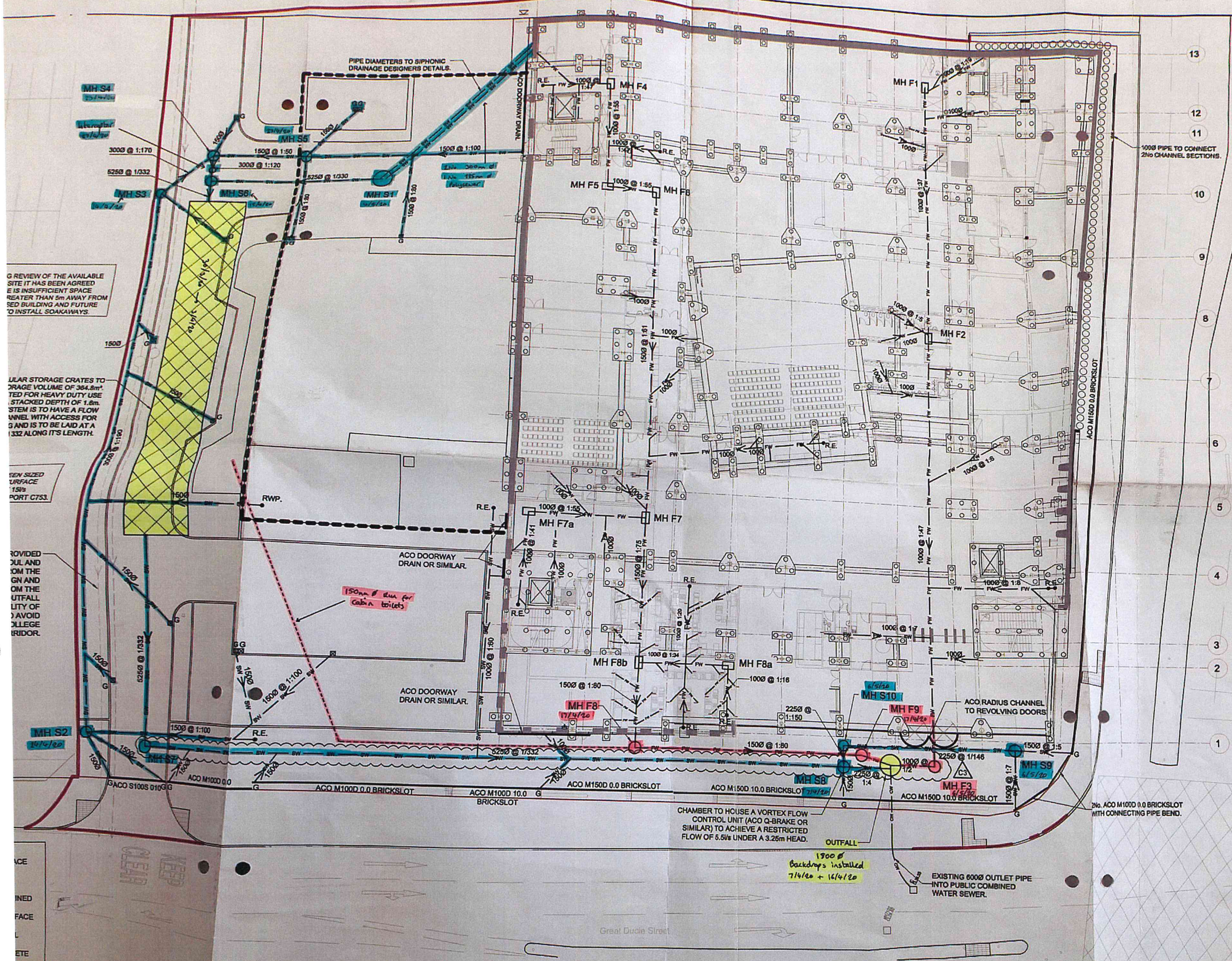
60594458

SHEET TITLE

PROPOSED SITE DRAINAGE
GENERAL ARRANGEMENT

SHEET NUMBER

CC-ACM-PH1-XX-DR-D-0001



G REVIEW OF THE AVAILABLE SITE IT HAS BEEN AGREED E IS INSUFFICIENT SPACE GREATER THAN 5m AWAY FROM SED BUILDING AND FUTURE TO INSTALL SOAKAWAYS.

ULAR STORAGE CRATES TO DRAGE VOLUME OF 364.8m³, TED FOR HEAVY DUTY USE. STACKED DEPTH OF 1.8m. STEM IS TO HAVE A FLOW UNNEL WITH ACCESS FOR G AND IS TO BE LAID AT A 1:332 ALONG ITS LENGTH.

SEN SIZED SURFACE 15% PORT C753.

ROVIDED OUL AND OM THE GN AND OM THE UTFALL LITY OF O AVOID COLLEGE RIDOR.

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AMBER
GULLY
REL

NOTE:
SITE LEVELS FALL AWAY FROM THE PROPOSED BUILDING THEREFORE ANY EXCEEDANCE WILL FLOW AWAY FROM THE BUILDING. FOR CONTOURS REFER TO DRAWING CC-ACM-PH1-XX-DR-D-0001.

NOTE:
THIS DRAWING IS BASED ON BBA LAYOUT P21.

Drainage Arisings Estimated Volumes

Manholes	SIZE	EST COMPACTED VOL OF ARISINGS
Outfall		2.2
F9		2.2
F8		2.2
S9	1.05 DIA X 1.9DP	5
S10	1.05 DIA X 2.0DP	6
S8	2.1 DIA X 2.0 DP	12
S7	2.1 DIA X 2.4DP	15
S2	1.2DIA X 1.4 DP	3
S3	1.2 DIA X 2.4 DP	6.5
S4	2.3X1.2X1.8X120%	6
S1	2.1 DIA X 2.7DP	18
S5	1.2 DIA X 1.5DP	3.5

PIPE RUNS

S9-S10	225DIA X 18M	9
F3 - OUT	150DIA X 3M	2
S8 - OUT	225DIA X 5M	3
F9-F8	150DIA 24M	11
F8 - POPUP	150 DIA X 52M	23
S8 - S7	0.525DIA X 70M	50
S7 - TANK	0.525 DIA X 21	15
S2 - S3	300DIA X 59M	33
S3 - S4	300 DIA X 8M	5
S4 - TANK	300 DIA X 6M	4
S5 - S4	150 DIA X 10M	11
S5 - POPUP	150DIA X 24M	11
SYPHONIC - S11	2@300DIA, 1@225 DIA X 23M	24
S1 - TANK	525DIA X 20M	15

TOTAL

297

Trench sizes used in calcs

PIPE DIA	DIG WIDTH	DEPTH NOT BACKFILLED WITH ARISINGS
150	750	575
225	750	650
300	750	725
525	750	950

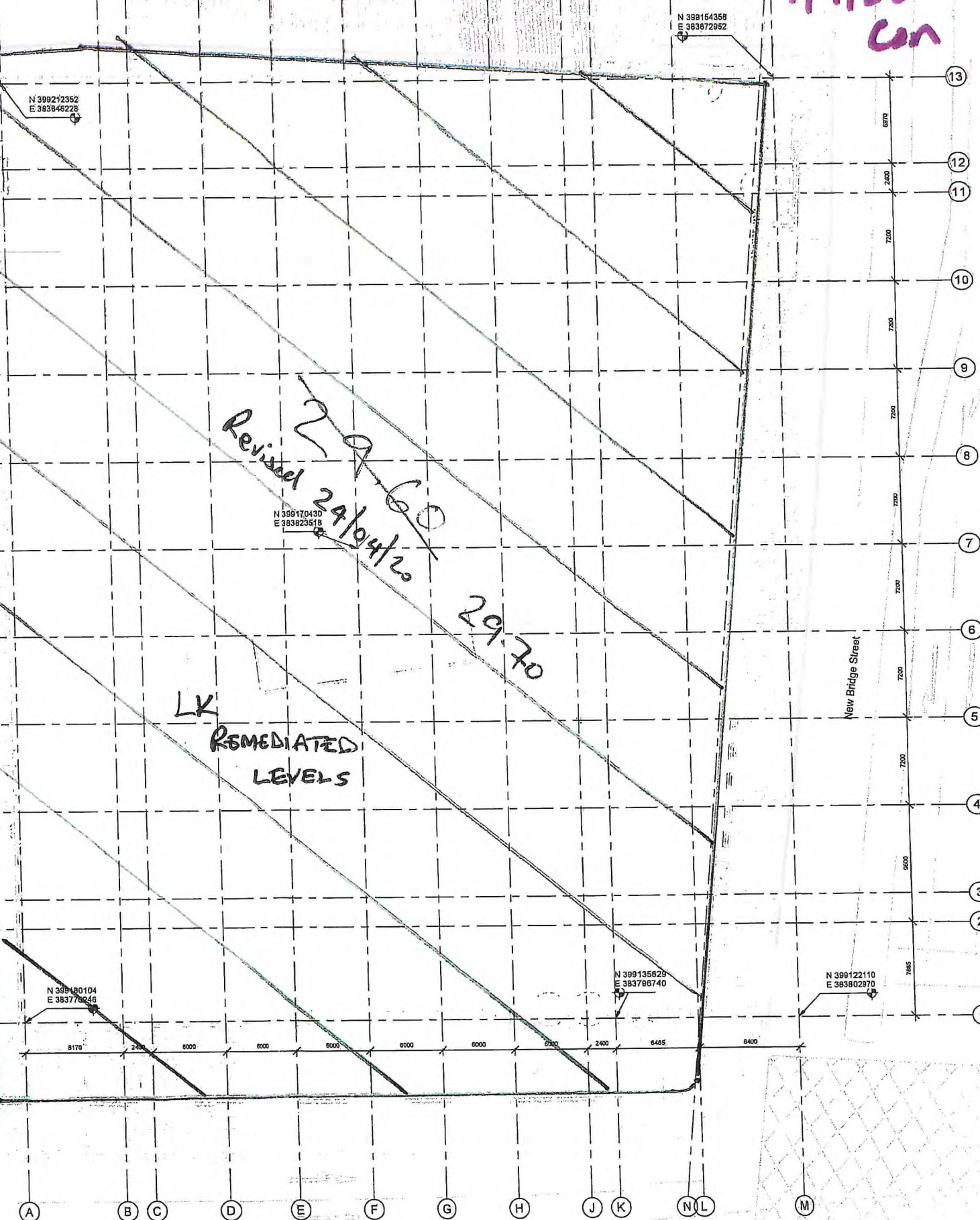
L.K. REMEDIATED LEVELS 14/4/20 Can

29.50
ATTENUATION TANK
L.K. R.L.D. 26.40 9.3.29

29.60
29.30
29.20

Revised 29.60
24/04/20
29.70

LK
REMEDIATED
LEVELS



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Notes
Drawings to be read in conjunction with Architectural Specification.
Drawings to be read in conjunction with Structural, MEP, Fire, Acoustic reports and drawings.
Refer to Designer's Risk Register for safety, health and environment.

AS BUILT REMEDIATED GROUND LEVELS By LK. (FROM HISTORIC WD RECORDS)

rev	description	checked	drawn	date
C01	Tender Issue	SHP	SHP	2020-05-11
P01	Final Issue	SHP	SHP	2019-11-15

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City Centre Project
City Centre Site
Manchester College

The Manchester College
UCEN MANCHESTER

Grid Setting Out

project	originator	volume	level	type	role	number
CC - SHP - ZZ - XX - DR - A - 1012						

Originator project ref 1038
scale(s) 1:200
original paper size A1

Purpose of Issue:
STAGE 4
status: A4
revision: C01