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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

MORGAN SINDALL

Star Academy, Radcliffe (Temporary Accommodation)

Remediation Validation Report – Temporary Accommodation

TM/C5394/13333 Rev B

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PROJECT QUALITY CONTROL DATA SHEET

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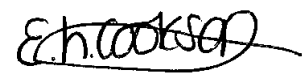
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DRAWINGS

Drawing Number	Re	Title
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FS1013-ALA-EX-ZZ-D-L-0001-S4	P14	Whole Site Plan
C5394/01A	-	Site Location Plan (Temp Accommodation)
C5394/11	A	Validation Plan

APPENDICES	
Appendix	Title
Appendix A	Chemical Specification for Soils
Appendix B	Materials Management Plan and QP Declarations
Appendix C	U1 Waste Exemption
Appendix D	Chemical Testing Results
Appendix E	Quarried Aggregate Provenance Information
Appendix F	Site Visit Records and Photographs
Appendix G	Delivery Notes
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Appendix I	Groundworks Contractor Materials Re-Use records

1.0 INTRODUCTION

1.1 Context

This Remediation Validation Report has been produced by Brownfield Solutions Limited (BSL) on behalf of Morgan Sindall Construction for a site off Spring Lane, Radcliffe.

The remedial works described within this report were carried out between May and November 2024.

1.2 Objectives

The objective of the validation works is to provide evidence demonstrating implementation of appropriate remediation measures. The remedial works were carried out in order to make the site suitable for the proposed end use as a school, as per the BSL Remedial Strategy, reference PH/C5394/12924 Rev A dated July 2024, which is understood to have been accepted by the Local Planning Authority (Bury Council).

This report is intended to provide evidence demonstrating implementation of the remedial measures detailed in the Remedial Strategy, in order to support the discharge of planning conditions, specifically condition 5 of Bury Council Planning Permission ref. 70002.

This version of the validation report (Revision B) has been updated to specifically address concerns raised by Bury Council in their letter ref. CL295.051124.1 dated 5th November 2024, within which on-site in-situ testing of the topsoil placed in soft landscaped areas was specifically requested in order to demonstrate that the actual topsoil brought to site is suitable for use. Additional testing has been undertaken and is discussed further in section 5.2 of this report.

1.3 Proposed Development

The proposed development involves the construction of a 'Temporary Accommodation' school building in the place of the former school building onsite. The building will consist of modular units, approximately two storeys high with associated infrastructure and hardstanding as shown on the Temps Whole Site Plan, drawing No. FS1013-ALA-EX-ZZ-D-L-0101-S2-P06 provided to BSL by Renaissance Associates Ltd.

It is assumed that the temporary accommodation development will remain onsite until the 'super teaching block' with a sports hall annexe and extensive MUGA / Sports Pitches is developed as part of the wider site, as detailed on the Whole Site Plan, drawing No. FS1013-ALA-EX-ZZ-D-L-0001-S4-P14.

The development of the wider site is being carried out under a separate planning permission (ref. 70001) and the remedial works required for wider site are detailed separately in BSL Remedial Strategy ref. JM/C5394/12470 Rev A, although requirements generally align with those for the Temporary Accommodation.

1.4 Previous Reports and Correspondence

The following reports are applicable to the site and should be read in conjunction with this validation report:

-
- Geotechnics, Desk Study Report, ref PC228400, dated May 2022.
 - Geotechnics, Preliminary Ground Investigation Report with Interpretive Chapter, ref: PN224390, dated August 2022.
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- BSL Coal Mining Risk Assessment, ref: PH/C5394/12312, issued August 2023.
 - BSL Phase II Geo-Environmental Assessment Report, ref: PH/C5394/12387 Rev D, issued July 2024.
 - BSL Phase II Geo-Environmental Assessment Report, ref: CM/C5394/12669 Rev B, issued June 2024.
 - BSL Remedial Strategy – Temporary Accommodation, ref. PH/C5394/12924 Rev A, issued July 2024.
 - BSL, Materials Management Plan, ref. TM/C5394/13199, issued June 2024.
-

It is assumed that the Local Planning Authority will have provided the above reports to the appropriate statutory consultees and the recommendations therein have been accepted.

1.5 Limitations

This report has been carried out based on information obtained from a number of areas, BSL have assumed that this information is correct.

There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this report and therefore not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, Morgan Sindall. No other third parties may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL). If any unauthorised third party comes into possession of this report, they rely on it at their own risk and BSL do not owe them any Duty of Care.

This report has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Any recommendations made in this report should be confirmed with the Regulatory Authorities to ensure compliance.

2.0 GROUND MODEL SUMMARY

2.1 Description of Site

The site is located off Spring Lane, Radcliffe, M26 2SZ. It is situated approximately 0.5 km north of Radcliffe Town Centre, centred on National Grid Reference 378700, 407630 as shown on the Site Location Plan, Drawing No. C5394/01A.

The main site features and potential issues identified during the time of the intrusive investigation are detailed below.

Feature	Description
Site Area	The site covers approximately 0.05 hectares.
Site Access	Access to the site is gained off Spring Lane to the south.
Current Land Use and Site Features	The site previously comprised a secondary school (Spring Lane School) and leisure centre (Radcliffe Leisure Centre) with associated hardstanding car parking areas. The school and leisure centre have since been demolished, with underground infrastructure grubbed out. As of May 2024, the site was level, surfaced with demolition material. A public footpath runs along the south-west border of the site (Banana Path). Prior to the demolition there were several manholes and services present in the proximity of the secondary school and leisure centre, some of which remained to the north and south of the former school post-demolition. An electricity substation to the south-east of the former school has been retained for the temporary accommodation development.
Potential Sources of Gross Contamination	Potential sources of gross contamination included the boiler house associated with the school development. There was also a chimney associated with the boiler house, although BSL understand this was disused and new gas boilers were installed in 2015 and 2019 for the school and leisure centre.
Vegetation / Ecology	Small clusters of trees are present near the entrance to the site off Spring Lane. A wooded area is also present to the west of the former school building but lies outside of the temporary accommodation site.
Topography	The site generally appears to gently slope to the south-east.
Site Boundaries	The site is enclosed by steel palisade fencing along the eastern border of the site, a wooded area to the north of the site, steel railings to the west and Spring Lane to the south.
Surrounding Area	The site is set within a mixed commercial and residential area, with a park and ride car park present to the south, residential properties to the west, a railway to the east, the disused Manchester Bolton and Bury Canal to the north-west and a wooded area to the north.

2.1 Environmental Setting

Site History

The site has been shown to have been developed from 1850, with a railway track transversing through the centre of the site. The historical site features are generally related to the railway development with associated goods yards and sidings, present until 1978. From 1987 a school is present onsite with associated playing fields and infrastructure, and an associated disused boiler room which is located in the eastern area of the site.

The surrounding developments include both industrial and residential. Evidence of mining has been present on the historical maps from 1850 with a colliery (Whittaker's Bridge Colliery) being present from 1891 to 1909, 200m NW of the site. Various industrial works have been present within 100m of the site.

Published Geology and Hydrogeology

From the Desk Study Assessment and published geology, it was anticipated that ground conditions would comprise the following sequence of strata (top down):

- Made Ground; over
- Glaciofluvial Deposits; over
- Pennine Middle Coal Measures Formation.

Hydrogeology

Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Glaciofluvial Deposits	Full Site	Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Pennine Middle Coal Measures	Full Site	Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The site does not lie within 500m of a Source Protection Zone.

Hydrology

The nearest named watercourse and surface water feature is the Manchester, Bolton and Bury Canal, 190m to the north-west of the site at its closest approach.

Radon

Information from the environmental database report and BGS Radon Report dated 11th October 2023 indicates the extent of the proposed new building is not in a radon affected area and therefore no radon protective measures are necessary in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2023 Edition.

UXO Risk

There is no indication of former military use from the desk study. A non-specialist review of online Zetica mapping indicates the site to be in an area where the bomb risk is a low and no further consideration of UXO is required.

Observed Geology and Groundwater

From the investigations carried out within the temporary accommodation site area, the ground conditions can be summarised as below (top down):

- Made ground encountered from ground level to between 0.60m and >3.45m bgl, where proven the base of the made ground was generally circa 2.00m – 2.50m bgl.
- Natural strata encountered from 2.00m to between 3.20m and 4.10m bgl.
- Solid geology was not encountered.
- Perched groundwater recorded between 1.10m and 3.50m bgl.

Contamination Observations

During the works undertaken by BSL, observations for both visual and olfactory evidence of contamination were undertaken.

Ash and clinker were observed to be a constituent within made ground in the majority of exploratory holes.

A slight hydrocarbon odour was recorded within the granular made ground within TP108 during pre demolition works. A slight hydrocarbon odour was recorded within the granular made ground within TP108 during pre-demolition works and within TPSA301.

During the post demolition investigation works, which took place alongside the demolition of the site allowing a watching brief to be in place, no evidence of gross hydrocarbon contamination was noted.

A suspected asbestos cement pipe was encountered by the demolition contractor and was subsequently removed prior to BSL commencing the post-demolition investigation works. No other evidence of visible asbestos within soils or below the building footprint has been noted to date.

Waste Transfer Notes are presented in Appendix H which include Hazardous Consignment Note CARLTD/03477 which details the removal of 780kg of asbestos waste generated during the removal of the asbestos pipe.

3.0 SUMMARY OF RISK ASSESSMENTS

3.1 General

The pre and post demolition phases of site investigation has confirmed the following:

-
- Localised asbestos, heavy metal and PAH contamination within the made ground.
 - Impaction of shallow groundwater in superficial deposits (Secondary A Aquifer) by metals and minor exceedances recorded in PAHs and petroleum hydrocarbons.
-

3.2 Human Health Risks

Made ground or made ground topsoil underlies the whole site, with heavy metal contamination (arsenic and lead) encountered above residential without homegrown produce screening levels identified within four soil samples spread across the temporary accommodation site.

PAH contamination above residential without homegrown produce screening values is also present within three soil samples located in the temporary accommodation site. In addition, several additional exploratory hole locations on the wider site have been found to contain elevated concentrations of PAHs, which are likely attributable to ash and clinker within the granular made ground, which was encountered throughout the temporary accommodation site.

Asbestos has also been detected at trace (<0.001% w/w) within one sample of made ground, taken from the location of a former asbestos cement pipe which was removed during demolition.

Based on the above, mitigation measures will be required.

It was considered unlikely that the site is being affected by offsite contamination sources as the site is underlain by clay strata and therefore contamination is unlikely to migrate onto the site.

3.3 Permanent Ground Gases and Vapours

A summary of the ground gas monitoring carried out by BSL is presented below:

-
- The available data set for the wider site exceeds the minimum requirements suggested by the guidance for assessment.
 - Whilst no monitoring wells have been installed within the immediate vicinity of the proposed temporary accommodation building, the potential source of concern (made ground) has been targeted and monitored in close proximity; the similarity in ground conditions in addition to the consistent site history across the eastern part of the site means the dataset for the onsite made ground can be used to assess the gas generation potential of the primary ground gas source.
 - It is considered that the ground gas concentrations and flows have been monitored to enable a predication of “worst case” conditions; rapid and short pressure decreases are within the dataset.
 - Although the methane concentrations place the site into CS2 based on the gas screening values, the levels are likely caused by the disturbance and oxygenation of the low organic content within the made ground; this is considered to be a highly limited low volume source.
 - The organic made ground responsible for the methane concentrations is highly localised, has not been encountered elsewhere on site, and is therefore not representative of the ground conditions as a whole.
 - Soft organic clays are geotechnically unsuitable and are likely to be removed anyway as part of the enabling works and earthworks programme likely to be required to create a development platform.
 - In addition, the location in question is well away from the proposed temporary building site, further reducing the risk.
-

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- The typical threshold concentration for carbon dioxide of 5% has been exceeded on a number of occasions within the spot monitoring data.
 - Despite the carbon dioxide concentrations, the dataset as a whole is characterised by very low to negligible flow rates and low methane concentrations.
 - However, based on the conceptual site model, likely generation sources and detailed assessment via ternary plots, the carbon dioxide concentrations are likely due to microbial respiration, where there is no requirement to increase the characteristic situation simply because the carbon dioxide concentration exceeds 5%.
 - The gas flows from the rotary boreholes have been discounted due to the groundwater being above the response zone and creating a piston effect.
 - CL:AIRE Research Bulletin RB17 states the minimum level of ventilation required to deal with condensation is capable of dealing with quite onerous ground gas regimes. In addition, the requirements of Part L of the building regulations relating to the air tightness of buildings also leads to the need for a well-sealed floor slab (NHBC Foundation, 2009).
 - Therefore, the structures on the development will also have an inherent level of ground gas protection, thus adding an additional layer of mitigation to the already low assessed level of risk.
 - Based on the evidence suggesting an absence of coal mining beneath the site, high ground water table, low permeability superficial deposits, and gas monitoring data, the overall risk from mine gases has been assessed as low.
-

The site has been assessed as Characteristic Situation 1 (CS1) in respect to permanent ground gases (carbon dioxide and methane) and no specific gas protection measures are required.

3.4 Risk to Controlled Waters

Chemical testing of groundwater to date shows exceedance of the Environmental Quality Standards (EQS) and Drinking Water Standards (DWS) for various metals as well as minor exceedances in short chain aliphatic hydrocarbons and PAHs. However, these were not considered to represent a significant risk of pollution of Controlled Waters due to the following reasons:

-
- There does not appear to be any clear linkage between contaminant concentrations within soils and leachates when compared to exceedances within groundwater.
 - No visual or olfactory evidence of gross contamination has been encountered during the site investigations within the temporary accommodation site to date, including during post-demolition investigation targeting former plant rooms and railway infrastructure.
 - There is no indication under present conditions of pollution of controlled waters and conditions following development of the site will not be any worse, indeed they may improve with increased hard cover and water retaining imported garden soils.
 - The post-demolition ground investigation has confirmed the widespread presence of cohesive superficial deposits immediately underlying the shallow made ground, and a consistent perched groundwater body indicating very low permeability of the cohesive soils, as confirmed by infiltration testing.
 - Based on the above, the cohesive soils are likely acting as an aquiclude inhibiting lateral and vertical contaminant migration.
 - It would be technically challenging and probably disproportionately costly to remove the contaminants from the water to the pre-input stage.
 - The above is especially pertinent given the generally minor and highly localised exceedances of PAHs.
 - The nearest named watercourse is the Manchester, Bolton 190m away from the site at its closest approach, and >250m from the isolated highest exceedance of PAH in, which provides considerable distance for attenuation and contaminant degradation.
 - The site is underlain by low permeability clays which will.
 - The site does not lie within 500m of an SPZ.
 - There are no potable (sensitive) water abstractions within 2000m.
-

Based on the above, the site is not considered to pose an unacceptable risk to controlled waters. Therefore, no specific remedial requirements for controlled waters are necessary.

3.5 Summary

A summary of the findings of the previous investigations and assessments where a risk is present (i.e. an unacceptable source-pathway-receptor linkage) which requires mitigation is presented in the table below.

Source	Receptor
<- Poses an unacceptable risk to ->	
Elevated concentrations of heavy metals (arsenic and lead), PAHs, and trace asbestos present within the made ground	Human health / construction workers (Residential without homegrown produce screening criteria adopted)
Hydrocarbons above laboratory limits of detection in made ground and groundwater	Water Pipe/ Human Health

Based on the above, it was recommended that a Remedial Strategy was prepared that identifies the specific remediation requirements for the site.

4.0 REMEDIATION STRATEGY

4.1 Outline

Based on the site investigations undertaken at the site and the contaminant sources identified within the CSM, the following require appraisal to determine the most suitable remedial options:

- General Made Ground – Pervasive contamination in the form of arsenic, lead, PAHs and localised trace asbestos has been identified within the made ground, presenting a risk to human health (site end users).

4.2 Site Remediation Requirements

Following an options appraisal in the Remedial Strategy (PH/C5394/12924 Rev A), remedial measures were selected for each of the identified sources. Full details are available within the Remedial Strategy, with the key requirements summarised in the table below.

Source	Contaminants of Concern	Remediation Method	Further Details / Remedial Requirements
Made Ground	Arsenic, Lead, PAHs, asbestos	Installation of Clean Cover System	In proposed new soft landscaping areas, a 450mm cover system comprising “clean” validated topsoil/subsoil should be installed. A warning geo-membrane or hard dig layer should also be installed at the base of the clean cover system.

In addition to the specific remedial requirements listed in the tables above which are intended to mitigate the risks from known sources, it was recommended that a watching brief be maintained during the groundworks and construction for any evidence of contamination and BSL consulted for advice.

With reference to the remedial requirements, “clean” soils are defined by the site-specific Human Health Remediation Targets, presented in Appendix A, which are derived from C4SLs/S4ULs for a residential without plant uptake end use.

Materials Management Plan

In order to enable the re-use of materials on site as part of the enabling works under the current regulatory regime and waste regulations, a Materials Management Plan was produced and declared to CL:AIRE. The Materials Management Plan and copies of QP declarations are presented in Appendix B.

Small quantities of topsoil were required to be imported for creation of limited new areas of soft landscaping. Due to the relatively low import volumes required which are significantly below 1000 tonnes, a U1 waste exemption was registered by the client for the purposes of importing soft landscaping soils onto the site. A copy of the U1 exemption is provided in Appendix C.

5.0 SITE REMEDIATION AND VALIDATION

5.1 General

The remediation process was undertaken between May and August 2024 and site visits were undertaken between the dates of 23rd May and 12th August 2024

A summary of the site works undertaken in accordance with the Remedial Strategy (report ref. PH/C5394/12924 Rev A) is detailed below.

5.2 Chemical Suitability of Imported and Site-Won Materials for re-use

As detailed in the Remedial Strategy, any soils or materials to be imported or re-used as part of the works should be tested for chemical compliance and suitability for the proposed end use. This section of the report summarises the evidence demonstrating suitability for use for each specific material type imported or re-used at the site.

Chemical suitability Imported / Re-used soils

The requirements for testing, as outlined within the approved Remedial Strategy, are detailed below:

Material and Source	Testing Suite	Sampling Frequency
Testing requirements for use as general fill (>600mm depth and beneath buildings / hard standing)		
First Generation (i.e. quarried stone)	No testing required. Certificate of material provenance is required.	
Site Generated / Imported 6F2	BSL Default Suite, Asbestos Screen	1 sample per 1000m ³ (minimum of 3 samples per source)
Testing requirements for use within cover systems		
Topsoil – Brownfield / recycled source	BSL Default Suite, TPH CWG Asbestos Screen	1 sample per 150m ³ (minimum of 6 samples per source)

Suitability of site-won crushed material as general fill

A stockpile of 6F2 was created from crushing of brick and concrete generated during the demolition of the former school and leisure centre buildings.

BSL carried out visual inspection and sampling of the site won fill on 23rd May 2024. The material consisted of greyish brown gravelly sand with high cobble content including concrete and brick, and the total volume was estimated at approximately 2000m³.

The material was sampled by BSL and 3 No. samples were tested for a broad suite of potential contaminants including heavy metals, PAHs and asbestos, in line with the requirements of the Remedial Strategy for material proposed for use as general fill. A further sample was tested by the demolition contractor, PP O'Connor, for an equivalent suite of contaminants. Chemical testing of the stockpiled 6F2 and initial assessment is presented in Appendix D (i2 analytical report 24-022856, samples SP01-SP03 & Chemtech Report ref. 133312). A summary assessment sheet is also enclosed, in which testing results were compared against the site-specific Human Health Remediation Targets as detailed in the Remedial Strategy and Appendix A, which reflect the LQM S4ULs for commercial end use (for site-won materials to be re-used as general fill beneath buildings and areas of hard standing).

The results confirm the results to be below the relevant screening criteria and are therefore considered acceptable for use as general fill beneath buildings and hard standing.

Chemical testing results and a summary assessment sheet are presented in Appendix D.

Imported MOT Type 1 as general fill

The groundworks contractor, Chartrange Ltd, has provided certification from their aggregate supplier, Tarmac, for MOT Type 1 aggregate which is required for use as general fill and sub-base.

The information provided comprises an aggregate properties report, which confirms that the material is a primary aggregate comprising carboniferous limestone derived from Tunstead Quarry. In accordance with the Remedial Strategy, no chemical testing is required for first generation quarried limestone aggregate which is considered chemically suitable for use.

The supplier certification is presented in Appendix E.

BSL attended the site on 30th July 2024, at which time a small stockpile of the MOT Type 1 was present on site. The material comprised a slightly sandy gravel of limestone and was consistent with a quarried source with no evidence of anthropogenic materials, therefore no further chemical testing is considered necessary to confirm suitability for use.

A site visit and photographic record is presented in Appendix F.

Delivery notes for imported materials are presented in Appendix G.

Imported Topsoil for clean cover system

The groundworks contractor, Chartrange Ltd, has provided certification from their topsoil supplier, Tim O'Hare Associates, detailing the chemical composition and physical properties of the proposed topsoil source, which are presented in Appendix D.

The source of the topsoil is understood to be Eaton Hall, which is considered to be a brownfield/recycled source for the purposes of specifying the testing.

The topsoil is described as a brown, slightly moist, friable, very slightly calcareous LOAMY SAND with a weakly developed, very fine to fine granular structure. The material has been described as stone-free and contained a low proportion of organic fines and occasional woody fragments. No usual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

A total volume of 40m³ was required, meaning a minimum of 6 samples were required for assessment of chemical suitability.

Testing certificates were provided by the supplier for 14 No. samples tested for comprehensive suites of analysis including metals, inorganic compounds, PAHs, TPH-CWG, BTEX and MTBE, and asbestos screen and ID. BSL can confirm that the frequency and scope of chemical testing far exceeds the requirements of the Remedial Strategy.

The testing results were compared to the Human Health Remediation Targets as detailed in the Remedial Strategy and Appendix A, which reflect the LQM S4ULs for residential without plant uptake.

The results confirm the soils to be below the relevant screening criteria and are therefore considered acceptable for use in garden and soft landscaping areas.

Chemical testing results (lab refs. TOHA/23/1136/SS and EMT-23-16922) and a summary assessment sheet are presented in Appendix D.

BSL attended the site on 30th July 2024, at which time a small stockpile of the imported topsoil was present on site. BSL understood at that stage a further two loads (circa 40 tonnes) were still required to be imported to complete the proposed landscaping. The material comprised a dark brown fine to coarse

sand topsoil with fine rootlets with no evidence of contamination and no anthropogenic constituents such as brick, etc.

BSL are satisfied that the topsoil is as expected and matches the description within the laboratory testing report and associated certification provided by Tim O'Hare Associates.

A site visit and photographic record is presented in Appendix F.

Delivery notes for imported materials are presented in Appendix G.

Following correspondence with the Local Planning Authority, Bury Council, further confirmatory on-site in-situ testing of the topsoil placed in soft landscaped areas has been specifically requested in order to demonstrate that the actual topsoil brought to site is suitable for use. BSL therefore re-attended the site on 7th November 2024 to obtain samples of topsoil from the newly installed soft landscaping areas. Samples were obtained from a range of locations in order to obtain material representative of each planting location as far as possible. The locations of individual samples are indicated on the Validation Plan, drawing ref. C5394/11 Rev A.

The topsoil placed in situ was consistent with the material previously observed on site, comprising dark brown fine to coarse sand topsoil with fine rootlets with no evidence of contamination and no anthropogenic constituents such as brick, etc.

A total of 3 No. samples were obtained by a BSL engineer and were tested for comprehensive range of analysis including metals, inorganic compounds, PAHs, TPH-CWG, BTEX and MTBE, and asbestos screen and ID. BSL can confirm that the frequency and scope of chemical testing far exceeds the requirements of the Remedial Strategy.

The testing results were compared to the Human Health Remediation Targets as detailed in the Remedial Strategy and Appendix A, which reflect the LQM S4ULs for residential without plant uptake.

The results confirm the soils to be below the relevant screening criteria and are therefore considered acceptable for use in garden and soft landscaping areas.

Chemical testing results (lab ref. 24-052718) and a summary assessment sheet are presented in Appendix D.

5.3 Installation of Clean Cover System – Depth Validation

As detailed in the Remediation Strategy (report reference PH/C5394/12924 Rev A), the clean cover system in soft landscaping areas should comprise (top down):

-
- 450mm “clean” validated topsoil/subsoil: over
 - Warning barrier membrane/ geotextile or 100mm thick hard dig layer (ideally “clean” first generation quarried MOT Type 1 or similar).
-

During the site visit on 30th July 2024, the cover system installation was ongoing and some areas of proposed landscaping had been over-excavated to a depth well in excess of the minimum 450mm required, in preparation for the installation of soft landscaping, with the contractor aware of requirements including the minimum thickness and use of a barrier geotextile at the base of new areas of soft landscaping to prevent soils mixing. A site visit and photographic record is presented in Appendix F.

BSL visited site on 12th August to validate the depth of the clean cover system. The locations of the hand pits are shown on the Validation Plan, Drawing No. C5394/11. Topsoil was encountered from ground level to depths between 450 and 500mm and was underlain by a geotextile membrane in every location, as shown in the table below.

Sample Location	Depth/ Strata	Pass / Fail
HP01	0-500mm Topsoil 500mm – Geotextile Membrane	Pass
HP02	0-450mm Topsoil 450mm – Geotextile Membrane	Pass
HP03	0-500mm Topsoil 500mm – Geotextile Membrane	Pass
HP04	0-500mm Topsoil 500mm – Geotextile Membrane	Pass

A photographic record of the depth validations is presented in Appendix F.

Based on our recent site visit and validation works, BSL confirm that the cover layer required in new soft landscaping areas is acceptable at the time of carrying out the validation.

5.4 MMP Verification Reporting

In accordance with the requirements of Section 3.4 of the CL:AIRE DoWCoP, this section of the report will outline how the materials management planning has been carried out over the course of the project. The report will compare the works carried out with the original Materials Management Plan (MMP) and any changes to the works.

To date, no materials have been required to be imported to the site under the MMP, which has comprised the re-use of site won soils and site-generated crushed materials, and importation of first-generation quarried aggregates. All other unsuitable soils and materials have been removed and disposed off-site to a suitable facility and waste transfer notes are presented in Appendix H.

All site-won materials were re-used in accordance with the BSL Remedial Strategy and the chemical suitability for use for each material type is demonstrated and discussed in section 5.2.

A summary of the requirements of the MMP Verification and location of the information is presented in the table below:

Item	Comments
Appropriate site plans	See drawings section of this report.
Experience and qualifications of the person(s) preparing the MMP Verification report	Tim Mayall MGeol (Hons) FGS, Senior Engineer with over 6 years of industry experience and authored numerous MMPs and verification reports. Lisa Cookson BSc Ind (Hons) CSci MEnvSc FGS, Senior Engineer and chartered scientist with well over a decade of industry experience and authored numerous MMPs.
Description of how the use of materials links with the Remediation Strategy	In accordance with the approved Remedial Strategy, following demolition of the former school and leisure centre, enabling earthworks were carried out to create a level development platform for a temporary school building and new construction of surrounding hard landscaping and limited soft landscaping. The works comprised a reduced level dig to achieve the desired finished levels and remove former foundations and structures from the previous buildings. Site won crushed material arising from the demolition and removal of foundations / hard standing was re-engineered beneath the proposed temporary cabins and as subbase beneath hard standing.

Item	Comments
	Unsuitable soils and materials were removed off site as waste.
Reference to site investigation data	Geotechnics, Desk Study Report, ref PC228400, dated May 2022. Geotechnics, Preliminary Ground Investigation Report with Interpretive Chapter, ref: PN224390, dated August 2022. BSL Phase II Geo-Environmental Assessment Report, ref: PH/C5394/12387 Rev D, issued July 2024. BSL Phase II Geo-Environmental Assessment Report, ref: CM/C5394/12669 Rev B, issued June 2024. Summaries provided in Section 2.0 of this report.
Reference to risk assessments	As above. Summaries provided in Section 3.0 of this report.
Reference to the MMP and associated tracking system, including any deviations and why	BSL, Materials Management Plan, reference TM/C5394/13199, dated June 2024. Tracking of site-won materials has been documented by the Groundworks Contractor via a final re-use drawing reviewed by BSL, which is presented in Appendix I. See volumes table and accompanying paragraphs below.
The suitable for use criteria adopted	See Appendix A. Evidence of compliance is detailed in section 5.2 of this report.
Any treatment records	Not applicable
Reference to waste transfer documentation, including return loads	Waste transfer notes provided in Appendix H. A total volume of 1089.7m ³ of unsuitable soils and materials have been disposed off-site
Signed delivery tickets	See Appendix G, where applicable.
Record of contingency arrangement(s) that had to be implemented (if any)	None specifically. Out of specification materials removed from site and disposed of – total volume of 1089.7m ³ of unsuitable soils and materials have been disposed off-site.
Record of quantity of materials used	See table below.
Copies of signed Declaration(s) by Qualified Person(s)	See Appendix B.

The volumes of materials re-used on site, as provided by the contractor to BSL, is summarised in the table below:

Material Type	Description / Comments / Area of Use	Volume (m ³)	Volume Summary
Imported MOT Type 1 (Not declared on MMP – clean quarried 1 st generation stone)	Subbase to underside of tarmac in pedestrian area and as subbase to the west of temporary accommodation building	300	384m³ Clean, quarried MOT Type 1 imported to site.
	New road subbase – 150mm thickness	64	
	New footpath subbase – 160mm thickness	16.5	
	Road widening subbase – 150mm thickness	3.5	
Site Won / Class 6F2	Use as engineered fill to underside of new temporary accommodation pad foundations – 600mm thickness	838	1,854.3m³ Site-won 6F2 re-used as general fill.
	Used as general fill between new pad foundations / to bring levels up to specified finished ground levels	900	
	Localised reduced level dig of 60mm was required within former cobble/tarmac road, however due to the very coarse nature of material which was removed it was necessary to over-dig and remove unsuitable	13.9	

Material Type	Description / Comments / Area of Use	Volume (m ³)	Volume Summary
	materials, and additional 6F2 was required to fill the resultant void		
	New road capping beneath subbase – 210mm thickness	90	
	Fill to new footpath after removal of existing cobbles and tarmac road	10.3	
	Road widening capping beneath subbase – 210mm thickness	2.1	
Imported Topsoil (Not declared on MMP – Imported under U1 Exemption)	Used within new areas of soft landscaping	39	39m³ Topsoil imported to site under U1 exemption

Discussion of final volumes and close out of MMP

The final volumes of site-won 6F2 and imported quarried aggregate used within the project were lower than anticipated, which is likely due to a lower than envisaged quantity of material which was required to be excavated as part of the reduced level dig, i.e. a lower quantity of unsuitable soils arising than originally modelled.

It should be noted that a stockpile of 1,250m³ of 6F2 remains on site, generated from the crushing of demolition materials on site. As discussed within section 1.3, the development described within this report is for a temporary school, whereas the wider site will be developed into a new permanent school and grounds under a separate planning permission (Bury Council permission reference 70001). The main school development will take place in accordance with a separate Remedial Strategy which has already been submitted and approved, and a separate MMP will be declared in due course. Works on the main school redevelopment are due to commence in Q4 2024. Based on the ongoing requirements for suitable engineered fill as part of the redevelopment of the site as a whole, the remaining site-won 6F2 will be re-used as general fill within the upcoming redevelopment and declared under the new MMP for the main school, and is therefore not considered to be surplus to requirements for the project as a whole.

Based on the information provided, BSL are satisfied that the work undertaken on site has been carried out in accordance with the requirements of the DoWCoP and is compliant with the MMP put in place for the site.

6.0 CONCLUSIONS

6.1 General

The remedial works described within this report were carried out between May and August 2024 under the partial supervision of BSL geo-environmental engineers. Whilst BSL has had a limited presence on site during this period as a whole, site visits have been carried out as required including during the demolition works, sampling / testing / inspection of site-won and imported materials to determine suitability for re-use, as well as validation of the cover system.

6.2 Suitability of Imported / Site-Won Soils

Based on the visual inspections and chemical testing of site-won crushed materials BSL can confirm that site-won 6F2 is chemically suitable for re-use as general fill.

In addition, with respect to imported soils, based on the evidence presented within this report for recycled topsoil and first generation quarried aggregate which will be imported prior to completion of the project, these materials are considered suitable for importation and use on site.

With respect to the topsoil, further confirmatory on-site in-situ testing of the topsoil placed in soft landscaped areas has been completed, and this demonstrates that the imported is suitable for use.

6.3 Verification of Clean Cover System

Based on the recent site visits and validation works, BSL confirm that the cover layer required in new soft landscaping areas is acceptable at the time of carrying out the validation

6.4 Materials Management Plan

Based on the information provided above we are satisfied that the work undertaken on site has been carried out in general accordance with the requirements of the CL:AIRE DoWCoP and is compliant with the MMP put in place for the site.

6.5 Watching Brief

A watching brief was maintained by the groundworks contractor throughout the remediation and redevelopment of the site. To the best of BSL's knowledge, gross contamination has not been identified, and the ground conditions were understood to be broadly consistent with those encountered during the earlier ground investigations. Therefore, no additional remedial measures are considered necessary at the site over and above those already stipulated within the approved Remedial Strategy.

6.6 Long Term Monitoring and Other Requirements

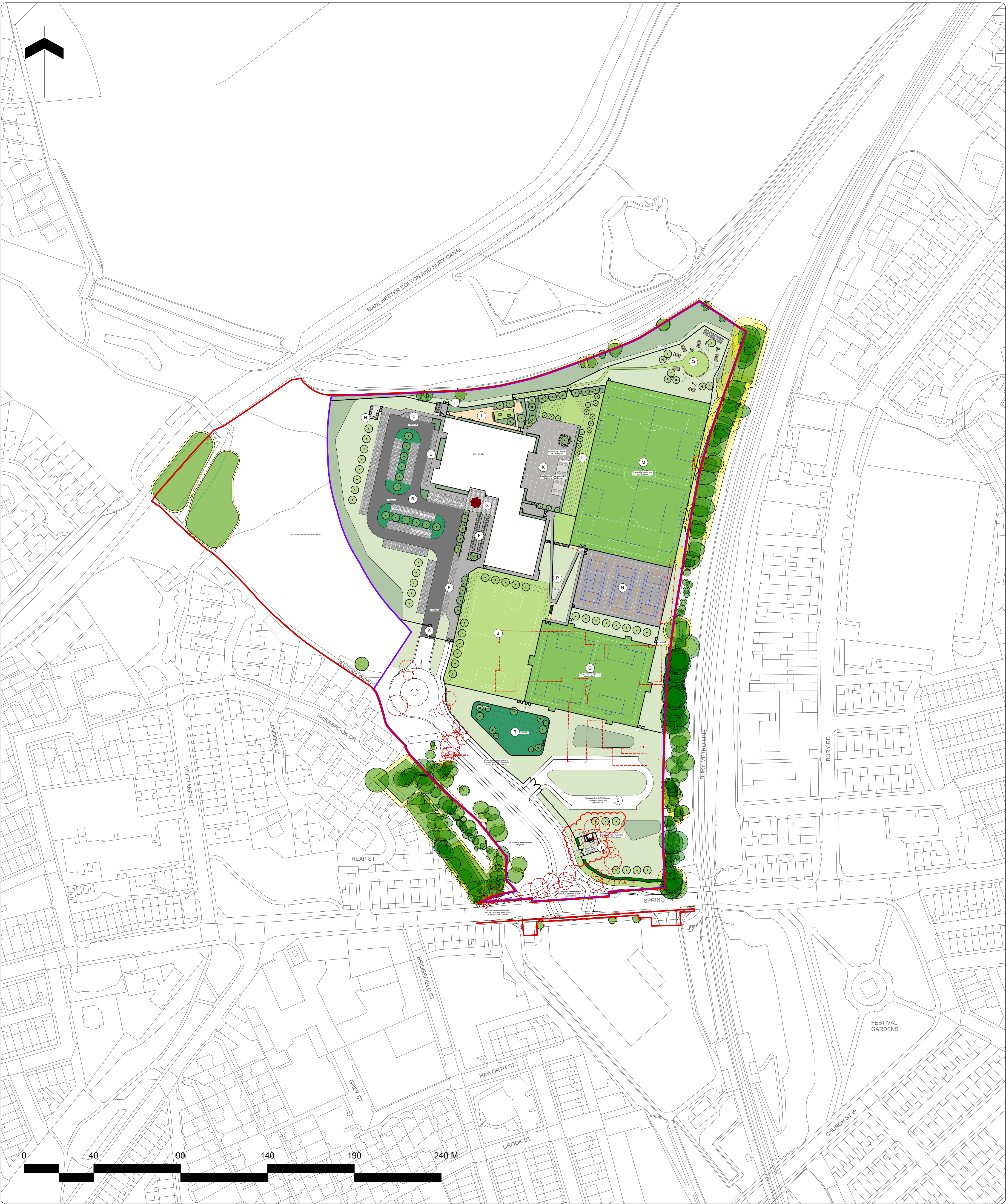
BSL can confirm that there are no long-term monitoring requirements at the site.

Development of the wider site is understood to be scheduled to commence in late 2024 / early 2025, and further groundworks and remediation will be required as part of these works, however this will be completed under separate planning applications and in accordance with a separate Remedial Strategy and MMP, and verification of the works will be reported under separate covers.

DRAWINGS



(S4) Status A - NO COMMENTS



Note

1. Do not scale from this drawing
2. To be read in conjunction with Project Risk Register REF: FS1013-ALA-EX-XX-RR-L-00001
3. To be read in conjunction with all other Landscape Architect's drawings
4. To be read in conjunction with Outline Landscape Specification REF: FS1013-ALA-EX-XX-SP-L-0001

1. Driveway to dry retention basin	2. Air fencing. End user access restricted. Basin to be 800mm deep. Basin to dry in most during a maximum event. Retention basin.	31.07.23
3. Felling on site with access to sport pitches	3. Felling on site with access to sport pitches	31.07.23
4. Collision between pedestrians and vehicles in car park	4. Collision between pedestrians and vehicles in car park	31.07.23
5. Collision between pedestrians and cyclists accessing sports pitches	5. Collision between pedestrians and cyclists accessing sports pitches	31.07.23
6. Collision between pedestrians and vehicles in car park	6. Collision between pedestrians and vehicles in car park	31.07.23
7. Felling from height - 1.5 grassed bank to east of sports pitch	7. Felling from height - 1.5 grassed bank to east of sports pitch	31.07.23
8. Collision between pedestrians and open windows	8. Collision between pedestrians and open windows	31.07.23

RESIDUAL PROJECT RISKS

KEY

Site

- Planning Application Boundary
- Extent of Works
- Proposed Building
- Existing Building to be demolished
- Existing Tree Retained
- Root Protection Area (RPA)
- Existing Tree to be removed
- Proposed Contours

(A) Entrance & Exit Gates
Automated Sliding gates

(B) Car Park
97no. (incl. 6no. Accessible & 18 no. EVCP)
2no. Motorcycle bays (Location of EV Parking and Motorcycle bays TBC)

(C) Refuse Layby

(D) Delivery/SEN Drop off Layby

(E) Coach drop off/Pick up
2no. Coach Spaces

(F) Cycle Parking (Student)
40no. Cycle hoops, 80no. Cycle spaces

(G) Entrance Plaza
Featured Block Paving

(H) Bin Store

(I) SEN Garden
Outdoor garden for SEN Students

(J) Mini Soccer Pitch
Grass area for outdoor play
Potential to accommodate an U9/U10 mini soccer pitch (61.0 x 43.0m). To be marked out as required subject to demand.

(K) Hard Informal
Secure Playground, with seating and canopies and feature line markings

(L) Proposed Grass Terraces
Contours to take the level difference, can also be used as natural bleacher style seating

(M) 3G All Weather Pitch
Primary sport. Football, can also accommodate Rugby training
2No. 11a-Side Football pitches TBC

(N) MUGA
Accommodates Basketball, Netball & Tennis

(O) GEN 2 All Weather Pitch
Accommodates Hockey and Football

(P) DDA Compliant route to Pitches & Stair access

(Q) Habitat/ Outdoor Learning area
Mown grass path and area with seating and educational habitat features

(R) SUDS
Dry attenuation basin

(S) Drop off loop
Capacity for 14no. cars

(T) Potential Substation, Water Meter and Gas Meter Location
To be Coordinated with M&E Engineer

(U) Cycle Parking (Staff)
5no. Cycle hoops, 10no. Cycle spaces

DATE	REV	DESCRIPTION OF REVISION	DRAWN BY	APPROVED BY
29/04/2024	P14	1. Substation location updated. Associated fencing amended to suit. 3no. trees moved north.	BS	-
11/04/2024	P13	1. SEN garden amended following updated SEN internal layout 2. Changes to fence line around SEN area, post and rain fencing south of sports hall, binstore area, access road, substation. 3. Levels to sport pitches amended as per SEL recommendations. 4. Latex access road design incorporated within site plan. 5. Feature star to main entrance amended to move away from building. 6. Substation and LV room amended as per latest I&R design.	BS	-
15/01/2024	P12	Wall reproduced on spring lane revised to sit within the planning boundary issued for Planning	BS	-
08/01/2024	P11	Existing wall along Spring Ln to be removed and re-provided. This: Trees relocated near Spring Ln. Not issued for planning as further review is required	BS	-

REVISIONS

STATUS :
S4 - Contractor's Proposals

ares
LANDSCAPE ARCHITECTS

Area Landscape Architects LTD
Galsborough,
51 Eyre Lane
Sheffield
S1 4RB
t: 0114 276 2000
e: hello@aresdesign.co.uk
w: ares.eu.com

CLIENT :
Morgan Sindall

PROJECT TITLE :
Star Radcliffe Academy, Bury

DRAWING TITLE :
Whole Site Plan

DRAWING SCALE :
1:1000

PAPER SIZE :
A1

DRAWING NUMBER :
FS1013-ALA-EX-ZD-L-0001

STATUS :
S4

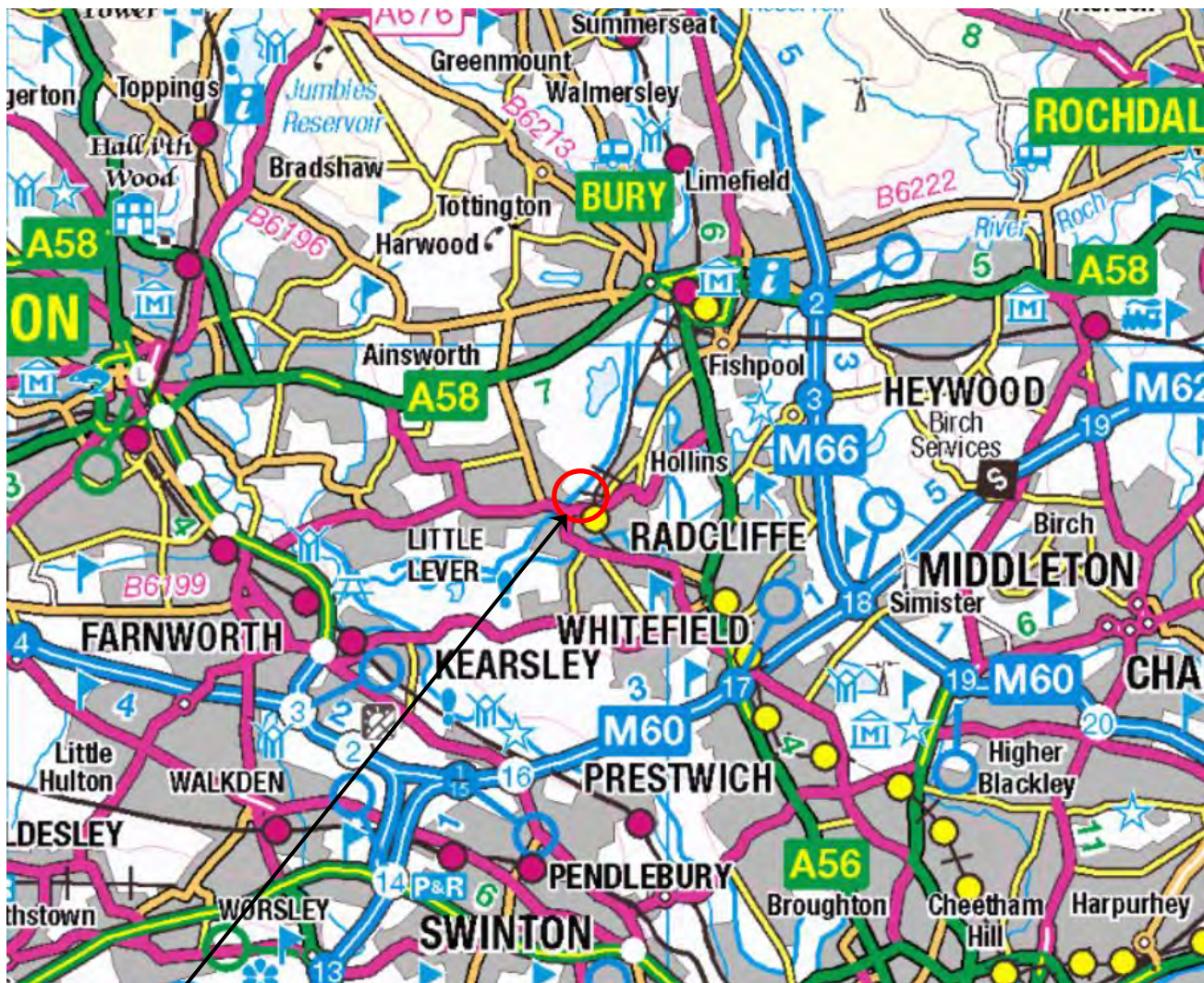
REVISION :
P14

DRAWN BY :
PH

APPROVED BY :
BS

DRAWN DATE :
06/07/2023

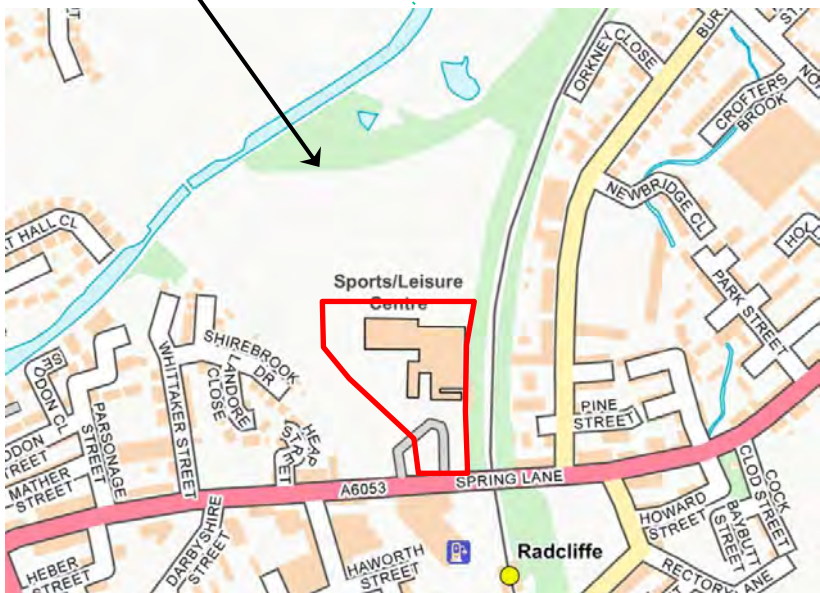
ALA PROJECT CODE :
ALA805



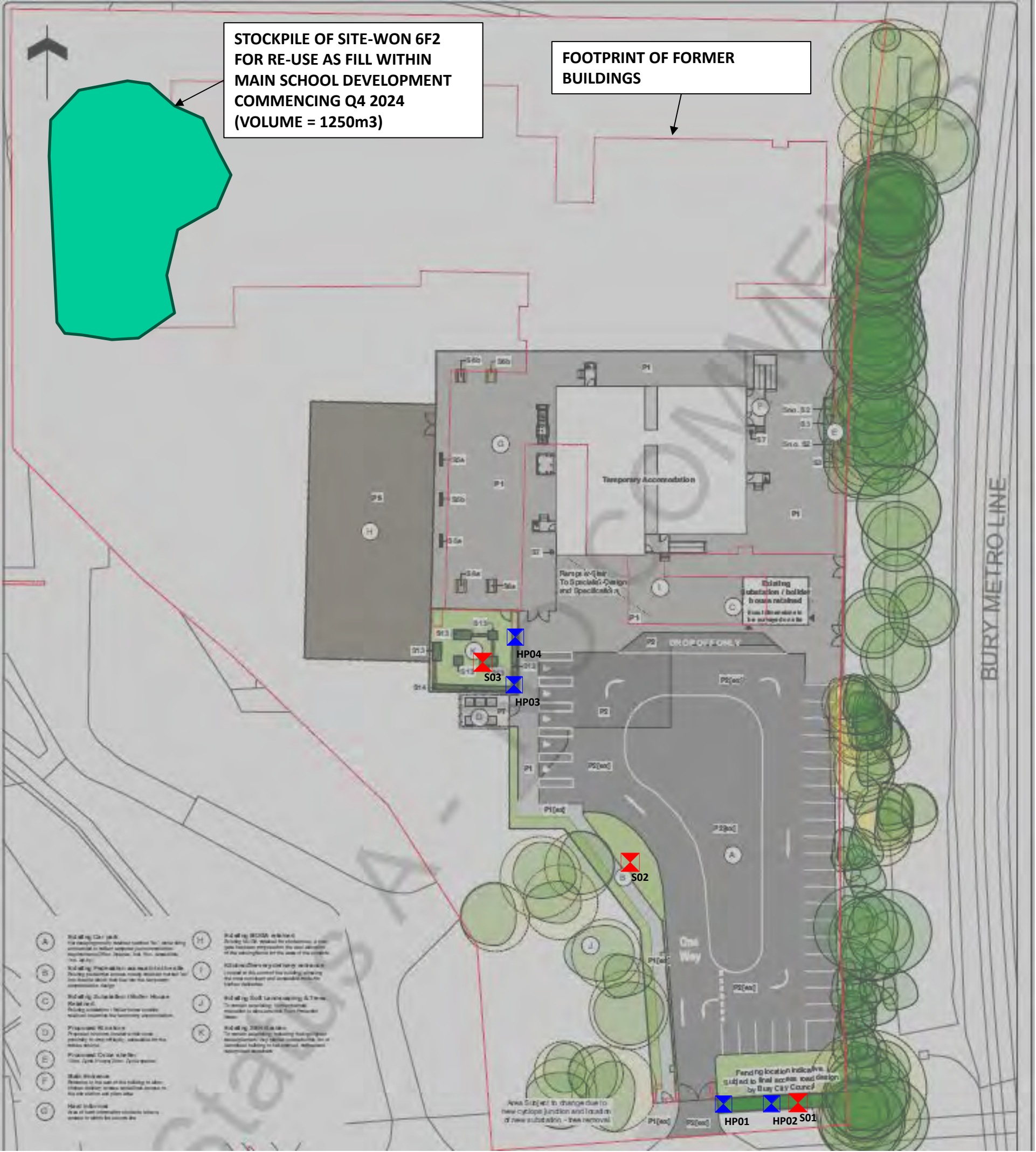
SITE LOCATION

NEAREST POSTCODE: M26 2SZ

SITE ENTRANCE WHAT3WORDS:
///CHAIR.VERGE.SINGLE



REV	DATE	DESCRIPTION	BY	CKD
BROWNFIELD SOLUTIONS LTD CREATING ENVIRONMENTAL PROGRESS THROUGH CIRCULARITY				
CLIENT MORGAN SINDALL				
PROJECT TITLE STAR ACADEMY, RADCLIFFE, MANCHESTER				
DRAWING TITLE SITE LOCATION PLAN (TEMPORARY ACCOMMODATION)				
DRAWING No. C5394/01A		REVISION -	SCALE NTS	DATE 11/03/23
DRAWN BY PH			CHECKED BY TM	



KEY

- APPROXIMATE SITE BOUNDARY
- COVER SYSTEM VALIDATION PIT HPXX
- POST-PLACEMENT SAMPLING LOCATION SXX

- NOTES
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS REPORTS. THIS DRAWING IS COPYRIGHT OF BSL.
 - DRAWING NOT FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CKD
A	07/11/24	AFTER TOPSOIL SAMPLING VISIT	SJ	TM



CLIENT
MORGAN SINDALL

PROJECT TITLE
STAR ACADEMY, RADCLIFFE
(TEMPORARY ACCOMODATION)

DRAWING TITLE
VALIDATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5394/11	A	NTS	12/08/24
DRAWN BY KB		CHECKED BY TM	

APPENDIX A

Chemical Specification for Soils

Quality Control Methodology for Imported and Re-used Soils

Prior to Importation and Re-use

Reliable testing results should be provided, or samples should be obtained at the source and tested prior to either importation to the subject site or re-use on site of origin as early as possible.

The frequency and scope of testing will vary depending on the source, the required testing for possible sources is provided below. These rates are based on professional judgement and acceptance of similar criteria used on similar sites to the satisfaction of the local regulatory authority. Results should be compared to the acceptance criteria also with this appendix.

Material Use	Testing Frequency*	Suite of Analysis					
		1	2	3	4	5	6
Topsoil							
Greenfield Source including Site Won (Top 450mm)	*1 per 250m ³						
Brownfield/Recycled Source including Site Won (Top 450mm)	**1 per 150m ³						
Subsoil							
Greenfield Source (Top 450mm)	*1 per 250m ³						
Brownfield/Recycled Source (Top 450mm)	**1 per 150m ³						
Site Won (Top 450mm)	*1 per 150m ³						
First Generation (i.e. quarried sand)	No testing required. Certificate of material provenance is required.						
Physical Stone Break Layer							
First Generation (i.e. quarried stone)	No testing required. Certificate of material provenance is required.						
Site Generated / Imported 6F2	*1 per 500m ³						
General Fill***							
Site Generated / Imported 6F2	*1 per 1000m ³						
Site Won Made Ground	*1 per 250m ³						
	*1 per 1000m ³						
Site Won Natural Arisings on Brownfield Site	*1 per 1500m ³						
Site Win Natural Arisings on Greenfield Site	*1 per 2000m ³						

Notes

1 – BSL Default Suite - Arsenic, Cadmium, Chromium (total and hex), Copper, Nickel, Mercury, Lead, Zinc, Selenium, speciated polycyclic hydrocarbons (PAH 16), water soluble sulphate (2:1 Extract), soil organic matter, and pH.

2 – Asbestos ID (and Quantification if detected).

3 – TPH Analysis - Speciated Total Petroleum Hydrocarbons (TPH CWG) including BTEX and MTBE.

4 – VOC Analysis - Volatile Organic compounds (VOCs) by GC-MS (ex TIC).

5 – SVOC Analysis - Semi-Volatile Organic compounds (SVOCs) by GC-MS (ex TIC).

6 – Visual Inspection & on-site screening for VOC using calibrated PID.

* - Minimum of 3 samples per source.

** Minimum of 6 samples per source.

***To be used at depths >450mm bgl or below building/hardstanding.

The testing should be undertaken at a UKAS accredited laboratory and be MCERTS accredited and all results should be below existing residential guideline values which are presented in Appendix A.

Topsoil/Subsoil

The above specification is to determine if material is chemically clean, for suitability as a growing medium reference should be made to BS3882:2015 Specification for Topsoil and BS 8601:2013 Specification for Subsoil and Requirements for Use.

In addition to the above sampling frequencies and testing, all imported topsoil/subsoil should also confirm to the following criteria:

-
- Have a maximum stone size of 75mm.
 - Be clean and free of foreign debris including building waste materials or contaminants e.g. brick, glass, asbestos and plasterboard, etc.
-

For imported soils, approval should be obtained from the Local Authority prior to importing to site.

Site Won Crushed Hardcore/Concrete (for use below building/hardstanding only)

In addition to the above sampling frequencies and testing; for re-use of hardcore/concrete (Grade 6) on the site of origin, BSL proposes the following inspection criteria:

-
- No visual contamination (oil staining etc).
 - Limited deleterious material (organics, wood, etc).
 - Limited metal.
 - No visible asbestos containing material (ACM).
 - Quantifiable Asbestos at or <0.001 w/w%.
-

Production of Grade 6 materials should be done under WRAP quality protocols or similar. Inspections and sampling would need to be carried out by a qualified geo-environmental engineer. For geotechnical performance, reference should be made to Series 600 Earthworks Guidance.

If the above criteria for asbestos is exceeded, then further consideration and assessment will be required. Works would need to be undertaken in compliance with the Control of Asbestos Regulations (CAR) 2012 and an Asbestos Plan of Works may be required.

Post Importation

The imported soils should be inspected on site to confirm it is the same material inspected at source and it is suitable for use. Once imported to site, tests should also be undertaken to confirm the batch is suitable prior to use and has not been contaminated in transit.

A management plan should be in place on site for storage and transportation. The material should be stockpiled separately and well segregated on site to prevent cross contamination in accordance with good site practice.

Accurate records of movement of soils should be kept in order to be incorporated in the final verification report.

Approval should be obtained from the Local Authority prior to use on site.

Validation and Verification Report

Site

A final verification report should be issued to the Local Authority/Warranty Provider (e.g. NHBC) detailing records of the re-use and importation of soils, alongside their use on the site.

Cover Layer

Once the chemical suitability of soils used for a cover system in soft landscaping and garden areas has been confirmed, the material can be placed in these areas.

The depth of the cover layer should be recorded, and photographs taken as evidence to be issued to the Local Authority/warranty provider in the verification report.

Approval for the placement of the cover layer should be obtained from the Local Authority/Warranty Provider.

Human Health Remediation Targets			Import (for use at any depth) and site won re-use in cover system soft landscaping areas <450mm; Based on residential without plant uptake (1% SOM) ^[1]	Re-use on site of origin only. Re-use only permitted beneath hardstanding; buildings, roads, car parks, pavements etc. Re-use Criteria based on Human health - Commercial (1%SOM)
Source	Contaminant	Unit		
LQM S4UL	Arsenic	mg/kg	40	640
LQM S4UL	Cadmium	mg/kg	85	190
LQM S4UL	Chromium (III)	mg/kg	910	8600
LQM S4UL	Chromium (VI)	mg/kg	6	33
LQM S4UL	Copper	mg/kg	7100	68000
C4SL	Lead	mg/kg	330	2300
LQM S4UL	Mercury, Elemental	mg/kg	1.2	58
LQM S4UL	Nickel	mg/kg	180	980
LQM S4UL	Selenium	mg/kg	430	12000
LQM S4UL	Zinc	mg/kg	40000	730000
LQM S4UL	Acenaphthene	mg/kg	3000	760
LQM S4UL	Acenaphthylene	mg/kg	2900	84000
LQM S4UL	Anthracene	mg/kg	31000	83000
LQM S4UL	Benz(a)anthracene	mg/kg	11	520000
LQM S4UL / DEFRA C4SL	Benzo(a)pyrene	mg/kg	3.2	170
LQM S4UL	Benzo(b)fluoranthene	mg/kg	3.9	35
LQM S4UL	Benzo(ghi)perylene	mg/kg	360	44
LQM S4UL	Benzo(k)fluoranthene	mg/kg	110	3900
LQM S4UL	Chrysene	mg/kg	30	1200
LQM S4UL	Dibenz(a,h)anthracene	mg/kg	0.31	350
LQM S4UL	Fluoranthene	mg/kg	1500	3.5
LQM S4UL	Fluorene	mg/kg	2800	23000
LQM S4UL	Indeno(1,2,3,cd)pyrene	mg/kg	45	63000
LQM S4UL	Naphthalene	mg/kg	2.3	500
LQM S4UL	Phenanthrene	mg/kg	1300	190
LQM S4UL	Pyrene	mg/kg	3700	22000
LQM S4UL	TPH Aliphatic EC 5 - 6*	mg/kg	42	54000
LQM S4UL	TPH Aliphatic EC 6 - 8*	mg/kg	100	3200
LQM S4UL	TPH Aliphatic EC 8 - 10*	mg/kg	27	7800
LQM S4UL	TPH Aliphatic EC 10 - 12*	mg/kg	130	2000
LQM S4UL	TPH Aliphatic EC 12 - 16*	mg/kg	1100	9700
LQM S4UL	TPH Aliphatic EC 16 - 35*	mg/kg	65000	59000
LQM S4UL	TPH Aliphatic EC 35 - 44*	mg/kg	65000	1600000
LQM S4UL	TPH Aromatic EC 5 - 7*	mg/kg	370	1600000
LQM S4UL	TPH Aromatic EC 7 - 8*	mg/kg	860	26000
LQM S4UL	TPH Aromatic EC 8 - 10*	mg/kg	47	56000
LQM S4UL	TPH Aromatic EC 10 - 12*	mg/kg	250	3500
LQM S4UL	TPH Aromatic EC 12 -16*	mg/kg	1800	16000
LQM S4UL	TPH Aromatic EC 16 - 21*	mg/kg	1900	36000
LQM S4UL	TPH Aromatic EC 21 - 35*	mg/kg	1900	28000
LQM S4UL	TPH Aromatic EC 35 - 44*	mg/kg	1900	28000
LQM S4UL	Benzene	mg/kg	0.38	28200
LQM S4UL	Toluene	mg/kg	880	27
LQM S4UL	Ethyl Benzene	mg/kg	83	56000
LQM S4UL	Xylene - o	mg/kg	88	5700
LQM S4UL	Xylene - m	mg/kg	82	6600
LQM S4UL	Xylene - p	mg/kg	79	6200
CL:AIRE 2010	MTBE (methyl tert-butyl ether)	mg/kg	49	5900
NA	Asbestos (No visual ACM)	% w/w	None Detected	7900
pH	B53882	pH Units	NA	<0.001%

^[1] Site won soils may be re-used anywhere on site below 450mm depth clean cover or hardstanding, providing there are no visual/olfactory signs of gross contamination. Organic materials should be placed away from proposed structures.

LQM/CIEH S4ULs copyright Land Quality Managment Limited reproduced with permission; Publication Number S4UL3237. All rights reserved.

See LQM/CIEH S4ULs Human Health Risk Assessment document for notes regarding derivation.

Criteria for PAH and TPH assumes an SOM of 1%.

*Soil matrix should contain no free product.

**Asbestos in soils below 1.00m bgl not defined

All imported material to have chemical concentrations less than the above levels for the site, with the exception of pH which is a range.

Test results to be provided to the engineer prior to placing soils, where appropriate.

All tests result to be undertaken by a UKAS Laboratory holding accreditation for the relevant tests.

APPENDIX B

Materials Management Plan and QP Declarations



**BROWNFIELD
SOLUTIONS LTD**

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

MORGAN SINDALL

Star Academy, Radcliffe (TEMPORARY ACCOMMODATION)

Materials Management Plan

TM/C5394/13199

BIM Ref. FS1013-BSL-XX-XX-T-O-1006

Revision: P01

June 2024

PROJECT QUALITY CONTROL DATA SHEET

Site Name:	Star Academy, Radcliffe (TEMPORARY ACCOMMODATION)		
Document Name:	Materials Management Plan		
Reference:	TM/C5394/13199		
BIM Ref.	FS1013-BSL-XX-XX-T-O-1006		
Status	Original / P01	17/06/2024	Original

Written by:



T Mayall
MGeol (Hons) FGS
Senior Project Engineer

Checked by:



L Cookson
BSc Ind (Hons) CSci MEnvSc FGS
Senior Project Engineer

CSci
Chartered
Scientist

Approved by:



L Cookson
BSc Ind (Hons) CSci MEnvSc FGS
Senior Project Engineer

CSci
Chartered
Scientist

APPENDICIES	
Appendix	Title
Appendix A	Supporting Information



Materials Management Plan (MMP) Form – Based on CL:AIRE October 2014 Version

This form should be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person.

A Qualified Person may comment on draft versions of this MMP, but will not complete the Declaration until all the relevant documents, demonstrating lines of evidence have been provided for each site.

The person / organisation who will pay the Declaration fee should confirm that they have read and understand the Terms and Conditions relating to the payment of the Declaration fee to CL:AIRE. These can be found on the CL:AIRE website.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address

Tim Mayall
Brownfield Solutions Limited
William Smith House
173 – 183 Witton Street
Northwich
Cheshire
CW9 5LP

01606 334844

t.mayall@brownfield-solutions.co.uk

☒ **I confirm I have read and understood the Terms & Conditions.**

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the Definition of Waste: Development Industry Code of Practice (DoW CoP) (1, 2, 3 or 4):

- ☒ 1. Reuse on the Site of Origin
- ☐ 2. Direct Transfer of clean naturally occurring soil / mineral materials
- ☐ 3. Cluster Project
- ☐ 4. Combination of any of the above

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc.:

Work will initially comprise a re-use of site-won crushed materials and made ground on the site of origin.

The project will also require direct transfer of clean, naturally occurring unpolluted soils and clean aggregates but this MMP will be declared as and when further details on these materials is available.

(NB: A Declaration is required for reuse on the Site of Origin and for any 2 site arrangement i.e. there is no facility for a combination Declaration)

Note - revisions to the MMP do not trigger an additional Declaration by a Qualified Person, unless an additional site is added to the project.

2. Organisation and name of person preparing this MMP	Tim Mayall Brownfield Solutions Limited William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP 01606 334844 t.mayall@brownfield-solutions.co.uk
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Site Details

3. Site / Project name(s)	Star Academy, Radcliffe (Temporary Accommodation)
Reuse / receiving site name including Postcode:	Star Academy, formerly Spiring Lane School, Spring Lane, Radcliffe, Manchester, M26 2SZ
Grid Reference:	378752 , 407520
Donor site name (if Direct Transfer)	Donor Sites TBC

Landowners

4a. Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused	Department for Education Free Schools Capital – North West Store Street, Manchester, M1 2WD Richard Storey (Project Director) Richard.storey@education.gov.uk T. 07967 368 815
4b. Name of Landowner(s) (full address and contact details) – where excavated materials are arising from	Department for Education Free Schools Capital – North West Store Street, Manchester, M1 2WD Richard Storey (Project Director) Richard.storey@education.gov.uk T. 07967 368 815 Landowner(s) of Donor Site(s) - TBC

Summary and objectives

5a. Provide a brief description of the planned project and how excavated materials are to be reused.	The site will be subject to a reduced level dig and other excavations such as for foundations and service trenches, with all site-won soil arisings to be disposed off-site. Site-won crushed materials arising from the demolition of the former school building will be tested for suitability and re-used as backfill material for service and drainage trenches and as engineered fill beneath the proposed temporary accommodation building. Site won made ground will also be used beneath the proposed temporary accommodation building and beneath areas of new hard standing. Material will be imported to the site via direct transfer of clean naturally occurring materials, comprising subsoils and DOT1 sub base materials, in order to raise site levels to the agreed development platform.
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General Plans and Schematics

6. Attach a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.	Site Location Plan C5394/01A Ares Landscape Architects Ltd, Temps Whole Site Plan, drawing number FS1013-ALA-EX-ZZ-D-L-0101-S2-P06.
7. Attach a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it. For all other projects a schematic is required.	Off-site disposal, re-use and importation volumetrics are summarised on BSL Schematic Flow Charts Ref C5394/FC01 (Cut / excavate and dispose off site) and C5394/FC02 (Fill / Re-use and importation)

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned.

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are to be reused.	David Keating (Senior Contracts Manager) Chartrange Ltd, Wharf Street, Dukinfield, SK16 4NJ 0161 339 4949
8b. Main earthworks contractor(s) (full address and contact details) - Where excavated materials are arising from (Donor Site).	Donor Sites TBC
9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a fixed STF / Cluster Project	N/A
10. Where wastes and materials are to be transported between sites, provide details of	Chartrange Ltd, Wharf Street, Dukinfield, SK16 4NJ 0161 339 4949

the transport contractor(s) (full address, contact details and waste carriers registration details (if applicable))	Waste Carrier Licence CBDU117542
11. Provide Local Authority contact details (full address and named contacts) where excavated materials are to be reused	Rebecca Jones Bury Council 3 Knowsley Place Duke Street Bury BL0 0EJ Rebecca.jones@bury.gov.uk 0161 253 6392
12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	Richard Bostock Environment Agency Richard Fairclough House Knutsford Road Latchford Warrington Cheshire WA4 1HT 03708 506506
For all Cluster Projects: 12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of DoW CoP). If the EA has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	N/A

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is, at what point it ceases to be waste; as complete a picture as possible has to be created.

The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.	The chemical specification for reuse of materials on site is set out in Appendix A of the BSL Report PH/C5394/12924 (BIM Reference FS1013-BSL-XX-XX-T-O-1005-P01) Remedial Strategy dated March 2024.
Where contamination is suspected or known to be present 14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the	Phase II Geo-Environmental Assessment Report, ref. CM/C5394/12669 Rev A (BIM Ref. FS1013-BSL-XX-XX-T-O-1003-P02) dated March 2024.

specification for use on the site. This must relate to the place where materials are to be used. This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a risk assessment is not relevant for a particular receptor given the site setting please explain why below:

The Risk Assessment, section 7.8, concluded the overall risk to human health was low to moderate/low, whereas the overall risk to controlled waters was low.

Any residual risks from contaminants within the made ground will be broken via installation of a clean cover system in soft landscaping areas.

Re-use of site-won crushed material from demolition works, and site-won made ground

A total of 1,353 m³ of 6F2 will be re-used on site as general engineered fill to build up levels beneath the proposed temporary accommodation building and areas of new hard standing. An additional 900m³ of site-won made ground excavated from beneath the temporary accommodation footprint will be re-used beneath the proposed building footprint.

BSL carried out visual inspection and sampling of the site-won 6F2 as part of a post-demolition site investigation completed in May 2024. Reporting for this is ongoing at the time of writing, however chemical testing of the stockpiled 6F2 and initial assessment is enclosed in the supporting information (i2 analytical report 24-022856 samples SP01-SP03). A summary assessment sheet is also enclosed and reveals 1 No. sample of the crushed material contains elevated concentrations of PAHs. However, given the crushed material will be re-used as engineered fill beneath areas of buildings and hard-standing, in this setting the material is suitable for use and poses no additional risk to human health or controlled waters.

Chemical testing of site-won made ground was completed as part of the post-demolition site investigation (i2 Analytical report 24-022856). Reporting on the findings is also pending, however these results are collated alongside the pre-demolition chemical testing results and a preliminary assessment sheet enclosed in the supporting information. This confirms the presence of elevated concentrations of PAHs as well as heavy metals and trace asbestos within the made ground beneath the former school. Sample ASBTP05 (asbestos at concentration of 0.014%) is not representative of the general made ground to be re-used, and represents a former asbestos pipe which has been remediated. In summary, despite the elevated concentrations of PAHs, heavy metals and trace asbestos, given the made ground will be re-used beneath areas of buildings and hard-standing, in this setting the material is suitable for use and poses no additional risk to human health or controlled waters.

14b. Please attach any relevant documentation from the LA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	Planning Permission for the temporary accommodation site issued by Bury Metropolitan Borough Council. Application number: 70002, dated 25/10/2023. Condition 4: “No development shall commence unless and until:Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority.” Decision notice dated 4th March 2024 issued by the Development Management Team confirms condition 4 has been discharged, i.e. Remedial Strategy accepted. The Remedial Strategy (Ref. PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005-P01) describes the re-use of materials in accordance with an MMP under the DoWCoP. In addition, email correspondence dated 10th April 2024 from Rebecca Jones at Bury Metropolitan Borough Council states no objection to the use of an MMP on the site and confirms discharge of pre-commencement planning conditions.
14c. Please attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and Table 2 of the CoP).	The Remediation Strategy (Ref. PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005-P01) outlines the re-use of materials, this report has been submitted and no comments have been made. In addition, email correspondence dated 26th April 2024 from Stephen Bostock (Environment Agency Waste Enquiries) states no objection to the use of the DoWCoP on the site.
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	N/A

<i>Where contamination is not suspected</i> 15a. Please attach copies or relevant extracts from the Desk Top Study that demonstrates that there is no suspicion of contamination.	To be updated with proposed imported material once donor site(s) have been identified.
15b. Please attach copies of or relevant extracts from the site investigation/testing reports that adequately characterise the clean materials to be used (if appropriate).	To be updated with proposed imported material once donor site(s) have been identified.
15c. Please attach copies of any other relevant information (if available) confirming that land contamination is not an issue.	N/A

NB: It is your responsibility to assess the nature of the material to be used and that it fits within the limitations of the scenario under which it is to be used.

Certainty of use

Various lines of evidence are required to demonstrate that the materials are certain to be used. This includes:

- The production of this MMP
- An appropriate planning permission (or conditions that link with the reuse of the said materials)
- An agreed Remediation Strategy(ies)
- An agreed Design Statement(s)
- Details of the contractual arrangements

Please identify in the following sections what lines of evidence relate to the site(s) **where the materials are to be used**.

16a. Planning Permission(s) relating to the site where materials are to be reused Please provide a copy of the relevant planning permission.	Bury Metropolitan Borough Council, Planning Permission ref. 70002 granted 25/10/2023.
16b. Explain how the reuse of the excavated materials fits within the planning permission(s) for each site.	Planning Permission for the temporary accommodation site issued by Bury Metropolitan Borough Council. Application number: 70002, dated 25/10/2023. Conditions 4 and 5 detail the remediation of contaminated material and the need for a Remediation Strategy and Remediation Method Statement, along with a Remediation Verification report to confirm the remedial works have been undertaken as approved and have been done so successfully. Decision notice dated 4th March 2024 issued by the Development Management Team confirms condition 4 has been discharged, i.e. Remedial Strategy accepted. The Remedial Strategy (Ref. PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005-P01) describes the re-use of materials in accordance with an MMP under the DoWCoP. Site levels will be engineered in line with the agreed finished floor levels submitted to planning.
16c. If planning permission is not required for any one site please explain why below e.g. permitted development, clean up of a chemical spill, surrender of an Environmental Permit, re-contouring within the existing permission.	N/A
<i>Where contamination is suspected or is known to be present</i> 17. Please provide a copy of any Remediation Strategy(ies) that have been agreed with relevant regulators.	Brownfield Solutions Ltd report reference 'PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005-P01 dated March 2024.

Where contamination is not suspected

N/A

18. Please provide a copy of any Design Statement(s) that have been agreed (e.g. with the planning authority or in the case of permitted developments the client).

Quantity of Use

19. Please provide a breakdown of the excavated materials for each site and how much will be placed at each site or sub area of each site.

Where this is not specific to a single readily identifiable source refer to an annotated plan, schematic or attach a tabulated summary.

A summary of the cut and fill required at the site is presented in BSL Schematic Flow Charts Ref C5394/FC01 (Cut / excavate and dispose off site) and C5394/FC02 (Fill / Re-use and importation).

Made ground arisings, such as from an initial reduced level dig, and from foundation and service trench arisings, will be disposed off-site and the shortfall compensated for by a combination of re-use of crushed site-won material produced from demolition, in addition to importation of direct transfer of clean, naturally occurring unpolluted soils and clean aggregates.

Volumetrics provided by the client are summarised as follows.

Summary of cuts / excavate and dispose off-site:

1. Reduce Levels Excavation– 2301m³
2. Excavate foundations – 152m³
3. Excavate Drain Trenches (Non Haz) – 164m³
4. Excavate Service Trenches (Non Haz) – 342m³

Total quantity to be excavated and disposed off-site = 2,959m³

Summary of re-use on site of origin, crushed material sourced from demolition:

1. General levels raise – 1072m³
2. Backfill Drain Trenches – 78m³
3. Backfill Service Trenches – 203m³

In addition, 900m³ of site won made ground will be re-used on the site beneath the building footprint.

Total quantity of site won material to be re-used on site =2,253m³

In addition, the following quantities are required to be imported to achieve the design finished levels.

1. Imported Subsoil – 93m³
2. Imported DOT1 sub bases – 537m³

Total quantity of material anticipated to be imported to the site = 630m³. The exact nature and source of imported fill is not yet known, and therefore this MMP will be updated and re-declared once further details are available. A running total of the imported material to make up the site deficit will be

detailed in the table below once donor sites and specific materials are confirmed					
Donor Site No.	Site Name	Material Description	Declared Volumes in m ³ (this MMP)	Running Total Volumes in m ³	Volume to be declared on this MMP (m ³)
Total volume to be declared on this MMP = 2,253 m³ of site won material re-used on the site of origin.					

20a. How has consolidation/compaction being considered in the above mass balance calculations?	As per the remediation strategy, compaction to a general specification will be undertaken and has been taken into consideration.
20b. How has loss due to treatment being considered in the above mass balance calculations (if applicable)?	N/A
20c. How has the addition of treatment materials being considered in the above mass balance calculations (if applicable)?	N/A

Contingency arrangements

Explain what is to happen in the following situations and **identify the appropriate clauses** in the contract(s) (Such clauses must be provided to the Qualified Person, preferably as a summary document):
or

21a. What is to happen to, and who is to pay for out of specification materials?	The main contractor on site (Chartrange) will be responsible for resolving or removing out of specification materials as part of pre-agreed contractual arrangements. Should problems arise with the main contractor (e.g. insolvency), then Morgan Sindall should become responsible and would appoint an appropriate subcontractor to deal with any out of specification materials. Resolution of issues may include providing for additional treatment or agreeing an alternative acceptable location for use (subject to being demonstrably suitable for use in that alternative location).
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	*It is assumed that pollution control measures in relation to dusts, odours, spills, invasive species etc are covered in other documentation.
21b. What is to happen to, and who is to pay for any excess materials?	Any excess materials to be disposed off site to suitable facility as per material flow chart. The main contractor on site (Chartrange) will be responsible for the costs associated with removing any excess materials as part of pre-agreed contractual arrangements. Should problems arise with the main contractor (e.g. insolvency), then Morgan Sindall should become responsible and would appoint an appropriate subcontractor to deal with any out of specification materials.
21c. What happens if the project programme slips in relation to excavated materials or materials under -going treatment?	The risk of significant project overrun with relation to excavated materials is considered to be low given the overall construction programme is due to be completed in circa August 2024 and includes relatively limited groundworks. In the event that programme slips and intended re-use of materials was not feasible within the timescales allowed by the programme, then Morgan Sindall would arrange for a subcontractor to dispose of the materials off site expediently.
21d. Other identified risk scenarios for the project (relating to excavated materials)?	N/A

The Tracking System

Where contamination is suspected, or known to be present, state the procedures put in place to:

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	The materials tracking form is provided in Appendix B and it will be the responsibility of the site manager to maintain the tracking system and other suitable records, including drawings of stockpile locations etc.
<i>Where contamination is suspected or known to be present, state the procedures put in place to:</i> 22b. Prevent contaminants not suitable for the treatment process being accepted.	N/A
<i>Where contamination is suspected or known to be present, state the procedures put in place to:</i> 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials.	A remediation engineer will undertake a watching brief during the demolition works, excavation and turnover to identify any unexpected contamination, determine the route of excavated material based on field screening and ensure the surveying of final excavations. The engineer will collect validation samples from the excavation where required to ensure contamination has been removed. Good stockpile management processes and segregation of materials will be implemented

Where contamination is suspected or known to be present, state the procedures put in place to: 22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination.	Control of materials will be via the materials tracking form, with records of tests and stockpiles as per the flow chart, presented in the supporting information.
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility.	Control of materials will be via the materials tracking form and spreadsheets.

23. Please attach a copy of the tracking forms / control sheets that are to be used to monitor materials movements. To include transfer of loads on site into stockpiles prior to treatment (if applicable), stockpiled after treatment (if applicable), stockpiled awaiting use (as appropriate) and final placement.	BSL materials tracking form.
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For Hub Sites within Cluster Projects & where materials need treatment before reuse: 24. Please attach a copy of the Environmental Permit covering the treatment process. Alternatively, if the treatment is covered by a Mobile Plant Permit and associated Deployment Form, attach a copy of the EA agreement to the Deployment Form.	N/A
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Records

25. Where, and in what form, are records to be kept? Note – records e.g. transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s) need to be kept for at least 2 years after the completion of the works and production of the Verification Report.	Brownfield Solutions will collate all the records supplied by the contractor at the end of the contract and present a full electronic copy of the data to Morgan Sindall. A backup copy of the records will also be available from Brownfield Solutions Limited for at least 2 years.
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Verification Plan

26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Tracking forms/excel spreadsheets and stockpile plans will monitor the movement of the material. Periodic survey records of the filling as the works progresses will be maintained by the contractor. A photographic record will also be kept as the work progresses. Outline of the verification plan is provided in the supporting information.
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Estimated Date of issue of Verification Report	31/08/2024
Persons responsible for producing the Verification Report:	Tim Mayall Brownfield Solutions Limited William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP 01606 334844 t.mayall@brownfield-solutions.co.uk

APPENDIX A

Supporting Information

This can be accessed via the link below:

[Appendix A Supporting Information](#)

Should you have any issues accessing the above link, please contact Brownfield Solutions.



Definition of Waste Code of Practice Declaration Receipt

This Declaration has been submitted to the Environment Agency under the Definition of Waste Code of Practice (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 may conclude that those materials were discarded and were waste.

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 upon request.

This receipt relates to the following Declaration -

1. References	
Your Reference for this Declaration	Star Academy Radcliffe MMP-QP Declaration
Related declaration references	None
3. Site of Origin	Checked
4. Direct Transfer	N/A
5. Cluster Project (including use of a fixed Soil Treatment Facility as a Hub site)	N/A
2. Proposed Volumes	
Proposed Volumes in m ³	2883
Additional comments on Proposed Volumes	
3. Site of Origin	
3a. Route A: Land affected by contamination or suspected of being affected by contamination	Checked
3b. Route B: Land not suspected of being affected by contamination.	N/A
Site Address	Star Academy, formerly Spiring Lane School, Spring Lane, Radcliffe, Manchester
Postcode for Site of Origin	M26 2SZ



Grid Reference for Site of Origin	378752 , 407520
3d. Site Owner(s)	
Site Owner #1	
Name	Department for Education Free Schools Capital – North West
Address	Store Street, Manchester, M1 2WD
Email	Richard.storey@education.gov.uk
Telephone	07967 368 815
3e. Developer	
Developer #1	
Company	Department for Education Free Schools Capital – North West
Address	Store Street, Manchester, M1 2WD
Contact Name	Richard Storey
Job Title	Project Manager
Email	Richard.storey@education.gov.uk
Telephone	07967 368 815
6. Local Authorities / Regulators	
6a. Local Authorities	
Local Authority #1	
Receiver Site Local Authority	Bury Metropolitan Borough Council
Local Authority Address	3 Knowsley Place Duke Street Bury BL0 0EJ
Lead Contact Name	Rebecca Jones
Lead Contact Role	Environmental Health Officer
Lead Contact Address (if different from above)	
Lead Contact Email	rebecca.jones@bury.gov.uk
Lead Contact Telephone	0161 253 6392
Receiver Site Agency	Warrington



Agency Address	Richard Fairclough House Knutsford Road Latchford Warrington Cheshire WA4 1HT
Contact Telephone	03708 506506
Contact Email	gmmcwasteenquiries@environment- agency.gov.uk

7. Lines of Evidence	
Reference for the Materials Management Plan	BSL: Star Academy, Radcliffe (TEMPORARY ACCOMMODATION) Materials Management Plan TM/C5394/13199 BIM Ref. FS1013-BSL- XX-XX-T-O-1006 Revision: P01 June 2024
Reference for the Risk Assessment	Reuse/Receiver: Brownfield Solutions Ltd report reference 'PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005- P01 dated March 2024.
Reference for either Remediation Strategy or Design Statement	Brownfield Solutions Ltd: Remedial Strategy Ref. PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005- P01 March 2024
Reference for the Verification Plan	Brownfield Solutions Ltd: Remedial Strategy Ref. PH/C5394/12924 / BIM Reference FS1013-BSL-XX-XX-T-O-1005- P01 March 2024. Section 7.0 & Appendix A Chemical Specification for Soils
Company	Brownfield Solutions Limited
Address	William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP
Name	Tim Mayall
Email	t.mayall@brownfield-solutions.co.uk
Telephone	01606 334844
Expected production date for the Verification Report.	2024-08-31 00:00:00
7gi. Location plans	Site Location Plan C5394/01A Ares Landscape Architects Ltd, Temps Whole Site Plan, drawing number FS1013-ALA- EX-ZZ-D-L-0101-S2-P06



7gii. Schematics	BSL Schematic Flow Charts Ref C5394/FC01 (Cut / excavate and dispose off site) and C5394/FC02 (Fill / Re-use and importation)
7giii. Desk Top Study	Brownfield Solutions Ltd: Geo-Environmental Assessment ref. CM/C5394/12669 dated December 2023
7giv. Mass balance calculations	Summary in MMP Box 19 & BSL drawing C5394/FC02 (Fill / Re-use and importation).
7gv. Contingency arrangements	MMP Box 21a to 21d and these meet the requirements of the DoWCoP manual.
7gvi. Tracking system	See MMP Sections 22a to 22e, 23 and material tracking form in MMP Appendix which fulfil the requirements listed in paragraph 3.12 of the DoWCoP manual.
a) The Local Authority	Checked
b) Environment Agency	Checked
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A
Reference the correspondence with the Local Authority	Planning 70002, dated 25/10/2023 Condition 4: "No development shall commence unless and until:Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority." Decision notice dated 4th March 2024 issued by the Development Management Team confirms condition 4 has been discharged, i.e. Remedial Strategy accepted. The Remedial Strategy describes the re-use of materials in accordance with an MMP under the DoWCoP. In addition, email correspondence to T Mayall of BSL dated 10th April 2024 from Rebecca Jones at Bury Metropolitan Borough Council states no objection to the use of an MMP on the site and confirms discharge of pre-commencement planning conditions.



Reference the correspondence with the Environment Agency	Email correspondence dated 26th April 2024 to T Mayall of BSL from Stephen Bostock (Environment Agency Waste Enquiries) states no objection to the use of the DoWCoP on the site.
I have reviewed the planning consent including planning conditions	Checked
Planning Reference (State either the reference or Not Applicable.)	70002, dated 25/10/2023
a) The Local Authority	Checked
b) Environment Agency	Checked
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A
Please list correspondence reviewed above	As Box 7h above only
Planning consent not required	N/A

8. QP Declaration

8a. QP Name	Chris Eccles
8b. QP Number	QP020
8c. 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.	Checked
8d. I have reviewed the Materials Management Plan for the above project.	Checked
8e. I have reviewed the Risk Assessment.	Checked
8f. I have reviewed the Remediation Strategy/Design Statement covering the above site.	Checked
8g. I have requested correspondence / documentation relating to the development and how that relates to the use of materials.	Checked



8h. 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	Checked
8i. 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.].	Checked
8j. 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).	Checked
8k. The project does not involve land-spreading / agricultural re-profiling.	Checked
8l. The project has not yet commenced; this is not a retrospective application of the DoW CoP.	Checked

APPENDIX C

U1 Waste Exemption

Waste exemption registration WEX410260

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 24 hours. Your registration details, including contact, site and business addresses are below.

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 WEX410260 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	WEX410260
Date registered	11 July 2024

Waste exemptions

U1: Use of waste in construction	Expires on 10 July 2027
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Your contact details

Your name	Jon Gaskell
Your telephone number	0797 461 7363
Your email address	jon.gaskell@morgansindall.com

Waste operator details

Business or organisation type	Limited company
Waste operator responsible for these waste operations	MORGAN SINDALL CONSTRUCTION & INFRASTRUCTURE LTD

Address of the Waste operator	MORGAN SINDALL 2 ANCHORAGE QUAY SALFORD M50 3YW
--------------------------------------	---

Waste operations contact

Name	Jon Gaskell
Position	Senior Design Manager
Telephone number	0797 461 7363
Email	jon.gaskell@morgansindall.com
Address	MORGAN SINDALL 2 ANCHORAGE QUAY SALFORD M50 3YW

Waste operation details

Grid reference	SD 78727 07481
Site details	Initial Works are the demolition of an old leisure centre and PRU School to allow for the provision of Temporary Accommodation for use by a new intake of pupils Sept 2024 followed by the construction of a new school. Star Radcliffe Academy will be a new five form entry, 750 place school for ages 11-16. The scheme is 100% new build with associated external spaces including sports pitches, car parking and habitat areas as well as a new access road. Opposite the site is the Radcliffe Metrolink.

APPENDIX D

Chemical Testing Results

C5394 Temps Topsoil Import Assessment, Summary Human Health © Copyright Brownfield Solutions Ltd 1 of 1 18/11/2024, 08:27



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Analytical Report Number : 24-052718

Project / Site name:	Star Academy, Radcliffe (Temps)	Samples received on:	11/11/2024
Your job number:	C5394	Samples instructed on / Analysis started on:	11/11/2024
Your order number:	C5394 5865 TM	Analysis completed by:	14/11/2024
Report Issue Number:	1	Report issued on:	15/11/2024
Samples Analysed:	3 soil samples		

Signed: _____

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

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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

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

Analytical Report Number: 24-052718
 Project / Site name: Star Academy, Radcliffe (Temps)
 Your Order No: C5394 5865 TM

Lab Sample Number	373515	373516	373517
Sample Reference	TS07-07/11/24 - S1	TS07-07/11/24 - S2	TS07-07/11/24 - S3
Sample Number	S1	S1	S1
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	07/11/2024	07/11/2024	07/11/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	15	12
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KJK	KJK	KJK

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.6	7.6	7.5
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	62	90	79
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	31.2	45	39.6
Organic Matter (automated)	%	0.1	MCERTS	3.1	5.4	2.3

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.09	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.3	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.07	2.5	0.3
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.16	3.5	0.46
Pyrene	mg/kg	0.05	MCERTS	0.15	3.4	0.46
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.07	1.6	0.2
Chrysene	mg/kg	0.05	MCERTS	0.11	1.7	0.27
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.12	1.9	0.25
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.75	0.09
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.09	1.8	0.24
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.82	0.12
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.14	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.96	0.14

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	20.1	2.53
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.7	12	5.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	5.2	12	9.5
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.8	13	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	42	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	83	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	5.5	14	8.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41	67	30

Analytical Report Number: 24-052718
Project / Site name: Star Academy, Radcliffe (Temps)
Your Order No: C5394 5865 TM

Lab Sample Number				373515	373516	373517
Sample Reference				TS07-07/11/24 - S1	TS07-07/11/24 - S2	TS07-07/11/24 - S3
Sample Number				S1	S1	S1
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/11/2024	07/11/2024	07/11/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	11	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	11	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	11	< 10

TPH (>EC5 - EC10) _{HS_1D_TOTAL}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (>EC16 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	< 10	18	14

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10	11	< 10
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005
Benzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005
Toluene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005
p & m-xylene	mg/kg	0.008	MCERTS	< 0.008	< 0.008	< 0.008
o-Xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005

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

Analytical Report Number : 24-052718

Project / Site name: Star Academy, Radcliffe (Temps)

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
373515	S07-07/11/24 - S	S1	None Supplied	Brown sandy loam with gravel and vegetation
373516	S07-07/11/24 - S	S1	None Supplied	Brown loam and sand with gravel and vegetation
373517	S07-07/11/24 - S	S1	None Supplied	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-052718

Project / Site name: Star Academy, Radcliffe (Temps)

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

Analytical Report Number : 24-052718

Project / Site name: Star Academy, Radcliffe (Temps)

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

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

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



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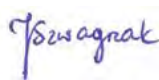
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Analytical Report Number : 24-022856

Project / Site name:	Star Academy, Radcliffe	Samples received on:	03/06/2024
Your job number:	C5394	Samples instructed on / Analysis started on:	03/06/2024
Your order number:	5348	Analysis completed by:	07/06/2024
Report Issue Number:	1	Report issued on:	11/06/2024
Samples Analysed:	12 soil samples		

Signed: 

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-022856
 Project / Site name: Star Academy, Radcliffe
 Your Order No: 5348

Lab Sample Number	215924	215925	215926	215927	215928
Sample Reference	TP311	TP312	TP313	TP314	TPSA301
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.60	0.30	0.30	0.40	0.30-0.70
Date Sampled	23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	33.1	< 0.1
Moisture Content	%	0.01	NONE	18	14	20	15	24
Total mass of sample received	kg	0.1	NONE	0.8	0.9	0.8	0.9	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.1	7.2	7.6	7.9	7.5
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	640	24	45	110	140
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	322	12	22.4	55.5	70.9
Organic Matter (automated)	%	0.1	MCERTS	12	1.7	7.7	8.1	8.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.2	0.06	1.4	4.2	3.7
Acenaphthylene	mg/kg	0.05	MCERTS	0.14	< 0.05	0.09	0.09	0.43
Acenaphthene	mg/kg	0.05	MCERTS	0.8	0.12	2.7	1.4	2.3
Fluorene	mg/kg	0.05	MCERTS	0.83	0.13	2.2	1.1	2.8
Phenanthrene	mg/kg	0.05	MCERTS	6.2	1.2	22	11	16
Anthracene	mg/kg	0.05	MCERTS	1.6	0.24	5.2	2.3	3.6
Fluoranthene	mg/kg	0.05	MCERTS	7.4	1	24	13	16
Pyrene	mg/kg	0.05	MCERTS	6.7	0.89	21	12	15
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.5	0.44	11	6.5	9.6
Chrysene	mg/kg	0.05	MCERTS	3.8	0.49	11	6.6	10
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.6	0.43	11	6.9	12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.7	0.17	3.9	2.4	6.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.9	0.36	9.3	5.8	13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.8	0.18	4.3	2.7	7.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.52	0.05	1	0.66	1.8
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2	0.21	4.5	2.9	8.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	44.7	5.99	135	78.8	130
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Analytical Report Number: 24-022856
Project / Site name: Star Academy, Radcliffe
Your Order No: 5348

Lab Sample Number	215924	215925	215926	215927	215928
Sample Reference	TP311	TP312	TP313	TP314	TPSA301
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.60	0.30	0.30	0.40	0.30-0.70
Date Sampled	23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	46	14	33	26	330
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	18	18	18	12	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	18	18	12	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	220	28	230	150	300
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	33	140	110	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.6	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	57	20	52	29	60
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	90	160	95	230

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	4.8	< 2.0	< 2.0	5.2	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	15	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C16 - C35 EH_CU_1D_AL	mg/kg	10	MCERTS	96	< 10	11	39	< 10
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	81	< 8.0	11	39	< 8.0
TPHCWG - Aliphatic >C35 - C40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	100	< 10	11	44	< 10
TPHCWG - Aliphatic >C5 - C40 EH_CU+HS_1D_AL	mg/kg	10	NONE	100	< 10	11	44	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	1	< 1.0	< 1.0	1.6	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	6.1	< 2.0	7.8	8	9.7
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	32	< 10	54	33	39
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	70	< 10	63	72	85
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	110	< 10	120	110	130
TPHCWG - Aromatic >EC5 - EC40 EH_CU+HS_1D_AR	mg/kg	10	NONE	110	< 10	120	110	130

TPH (>C5 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (>C16 - C40) EH_CU_1D_TOTAL	mg/kg	10	NONE	210	< 10	130	160	140

TPH Total >C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	210	< 10	140	160	130
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
p & m-xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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

Analytical Report Number: 24-022856
 Project / Site name: Star Academy, Radcliffe
 Your Order No: 5348

Lab Sample Number	215929	215930	215931	215932	215933
Sample Reference	TP307	TP303	TP315	TP310	SP01
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.70-1.30	1.30-1.70	0.30-1.00	0.30-0.50	None Supplied
Date Sampled	23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	38.5
Moisture Content	%	0.01	NONE	18	17	15	21	7.5
Total mass of sample received	kg	0.1	NONE	0.9	0.8	0.9	1.3	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.1	7.3	8.2	8.2	11.8
Free Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	94	420	240	540	88
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	46.9	212	118	269	44.1
Organic Matter (automated)	%	0.1	MCERTS	11	7.8	6.2	6.1	1.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	10	1.3	0.33	0.42	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	0.67	0.2	0.07	0.12	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	34	0.67	0.19	0.69	0.28
Fluorene	mg/kg	0.05	MCERTS	26	0.68	0.17	0.52	0.2
Phenanthrene	mg/kg	0.05	MCERTS	280	7	1.9	5.1	2
Anthracene	mg/kg	0.05	MCERTS	62	1.7	0.55	1.5	0.65
Fluoranthene	mg/kg	0.05	MCERTS	310	10	4.1	7.9	4.9
Pyrene	mg/kg	0.05	MCERTS	260	9.3	3.8	8	4.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	160	5.8	2.3	6.6	2.2
Chrysene	mg/kg	0.05	MCERTS	170	6.2	2.5	6.2	2.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	170	6.4	3.2	7.9	2.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	55	3	1.4	3	1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	140	5.2	2.6	8.1	2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	60	2.7	1.5	4.7	0.95
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	14	0.81	0.41	0.97	0.18
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	67	2.8	1.6	5.2	0.97

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1810	63.6	26.6	66.7	24.2
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Analytical Report Number: 24-022856
Project / Site name: Star Academy, Radcliffe
Your Order No: 5348

Lab Sample Number	215929	215930	215931	215932	215933
Sample Reference	TP307	TP303	TP315	TP310	SP01
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.70-1.30	1.30-1.70	0.30-1.00	0.30-0.50	None Supplied
Date Sampled	23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	37	72	41	39	7.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	24	26	35	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	24	26	35	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	250	690	320	300	41
Lead (aqua regia extractable)	mg/kg	1	MCERTS	170	480	340	210	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	53	50	37	64	8.9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	290	250	110	220	89

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	-
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	-
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	-
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	9.4	9.4	< 2.0	< 2.0	-
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	20	23	< 8.0	< 8.0	-
TPHCWG - Aliphatic >C16 - C35 EH_CU_1D_AL	mg/kg	10	MCERTS	80	91	16	< 10	-
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	60	68	16	< 8.0	-
TPHCWG - Aliphatic >C35 - C40 EH_CU_1D_AL	mg/kg	10	NONE	11	< 10	< 10	< 10	-
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	89	100	16	< 10	-
TPHCWG - Aliphatic >C5 - C40 EH_CU+HS_1D_AL	mg/kg	10	NONE	100	100	16	< 10	-

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	6.6	< 1.0	< 1.0	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	64	10	3.3	4.8	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	440	35	18	28	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	880	46	52	80	-
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	76	< 10	< 10	< 10	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	1400	91	73	110	-
TPHCWG - Aromatic >EC5 - EC40 EH_CU+HS_1D_AR	mg/kg	10	NONE	1500	91	73	110	-

TPH (>C5 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	-
TPH (>C16 - C40) EH_CU_1D_TOTAL	mg/kg	10	NONE	1500	180	92	110	-

TPH Total >C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	1600	190	89	110	-
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VOCS

MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	< 0.005	< 0.005	< 0.005	< 0.005	-
Benzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	-
Toluene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	-
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	-
p & m-xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	-
o-Xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	-

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

Analytical Report Number: 24-022856
 Project / Site name: Star Academy, Radcliffe
 Your Order No: 5348

Lab Sample Number				215934	215935
Sample Reference				SP02	SP03
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	32.8	22
Moisture Content	%	0.01	NONE	6.4	8.9
Total mass of sample received	kg	0.1	NONE	0.9	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	12	11.9
Free Cyanide	mg/kg	1	MCERTS	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	91	47
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	45.7	23.3
Organic Matter (automated)	%	0.1	MCERTS	1.3	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.84	0.14
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1.6	0.24
Fluorene	mg/kg	0.05	MCERTS	1.2	0.14
Phenanthrene	mg/kg	0.05	MCERTS	9.2	1.6
Anthracene	mg/kg	0.05	MCERTS	2.4	0.36
Fluoranthene	mg/kg	0.05	MCERTS	14	2.5
Pyrene	mg/kg	0.05	MCERTS	11	2.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	6.2	1.2
Chrysene	mg/kg	0.05	MCERTS	6.7	1.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	6.3	1.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3	0.51
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.7	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.6	0.61
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.64	0.13
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.7	0.67

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	73.8	14.1
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Analytical Report Number: 24-022856
 Project / Site name: Star Academy, Radcliffe
 Your Order No: 5348

Lab Sample Number				215934	215935
Sample Reference				SP02	SP03
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.4	5.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	71
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.8	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	64

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	-	-
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	-	-
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	-	-
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	-	-
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	-	-
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	-	-
TPHCWG - Aliphatic >C16 - C35 EH_CU_1D_AL	mg/kg	10	MCERTS	-	-
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	-	-
TPHCWG - Aliphatic >C35 - C40 EH_CU_1D_AL	mg/kg	10	NONE	-	-
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	-	-
TPHCWG - Aliphatic >C5 - C40 EH_CU+HS_1D_AL	mg/kg	10	NONE	-	-

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	-	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	-	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	-	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	-	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-
TPHCWG - Aromatic >EC5 - EC40 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-

TPH (>C5 - C10) HS_1D_TOTAL	mg/kg	1	NONE	-	-
TPH (>C16 - C40) EH_CU_1D_TOTAL	mg/kg	10	NONE	-	-

TPH Total >C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	-	-
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VOCS

MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	-	-
Benzene	mg/kg	0.005	MCERTS	-	-
Toluene	mg/kg	0.005	MCERTS	-	-
Ethylbenzene	mg/kg	0.005	MCERTS	-	-
p & m-xylene	mg/kg	0.005	MCERTS	-	-
o-Xylene	mg/kg	0.005	MCERTS	-	-

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

Analytical Report Number : 24-022856

Project / Site name: Star Academy, Radcliffe

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
215924	TP311	None Supplied	0.6	Brown sand with gravel
215925	TP312	None Supplied	0.3	Brown clay and sand with gravel
215926	TP313	None Supplied	0.3	Brown sand with gravel
215927	TP314	None Supplied	0.4	Brown sand with gravel and stones
215928	TPSA301	None Supplied	0.30-0.70	Brown sand with gravel
215929	TP307	None Supplied	0.70-1.30	Brown sand with gravel
215930	TP303	None Supplied	1.30-1.70	Brown sand with gravel
215931	TP315	None Supplied	0.30-1.00	Brown sand with gravel
215932	TP310	None Supplied	0.30-0.50	Brown sand with gravel
215933	SP01	None Supplied	None Supplied	Brown sand with gravel and stones
215934	SP02	None Supplied	None Supplied	Brown sand with gravel and stones
215935	SP03	None Supplied	None Supplied	Brown sand with gravel and stones

Analytical Report Number : 24-022856
Project / Site name: Star Academy, Radcliffe

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-022856
Project / Site name: Star Academy, Radcliffe

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

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



Sample Deviation Report



Analytical Report Number : 24-022856

Project / Site name: Star Academy, Radcliffe

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP311	N/A	S	215924	c	Free cyanide in soil	L080	c
TP312	N/A	S	215925	c	Free cyanide in soil	L080	c
TP313	N/A	S	215926	c	Free cyanide in soil	L080	c
TP314	N/A	S	215927	c	Free cyanide in soil	L080	c
TPSA301	N/A	S	215928	c	Free cyanide in soil	L080	c

ANALYTICAL TEST REPORT

Contract no: 133312

Contract name: Spring Lane School

Client reference: AJB FBQ 210621

Clients name: PP O'Connor

Clients address: 61 Mosley Road
Trafford Park
Manchester
M17 1GJ

Samples received: 21 May 2024

Analysis started: 21 May 2024

Analysis completed: 24 May 2024

Report issued: 24 May 2024

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:



Rachael Burton
Sample Reception & Preparation Manager

Chemtech Environmental Limited

SOLIDS

Lab number			133312-1
Sample id			DM1
Depth (m)			-
Date sampled			14/05/2024
Test	Method	Units	
Arsenic (total)	CE264	mg/kg As	2.9
Beryllium (total)	CE264	mg/kg Be	0.3
Boron (water soluble)	CE063	mg/kg B	0.6
Cadmium (total)	CE264	mg/kg Cd	<1.6
Chromium (total)	CE264	mg/kg Cr	29
Chromium (III)	CE208	mg/kg CrIII	29
Chromium (VI)	CE263	mg/kg CrVI	0.3
Copper (total)	CE264	mg/kg Cu	20
Lead (total)	CE264	mg/kg Pb	70
Mercury (total)	CE264	mg/kg Hg	<0.7
Nickel (total)	CE264	mg/kg Ni	13
Selenium (total)	CE264	mg/kg Se	<3
Vanadium (total)	CE264	mg/kg V	161
Zinc (total)	CE264	mg/kg Zn	136
pH	CE004	units	10.8
PAH			
Naphthalene	CE087	mg/kg	0.05
Acenaphthylene	CE087	mg/kg	<0.02
Acenaphthene	CE087	mg/kg	0.24
Fluorene	CE087	mg/kg	0.16
Phenanthrene	CE087	mg/kg	1.17
Anthracene	CE087	mg/kg	0.30
Fluoranthene	CE087	mg/kg	1.61
Pyrene	CE087	mg/kg	1.38
Benzo(a)anthracene	CE087	mg/kg	0.76
Chrysene	CE087	mg/kg	0.75
Benzo(b)fluoranthene	CE087	mg/kg	0.82
Benzo(k)fluoranthene	CE087	mg/kg	0.35
Benzo(a)pyrene	CE087	mg/kg	0.60
Indeno(123cd)pyrene	CE087	mg/kg	0.47
Dibenz(ah)anthracene	CE087	mg/kg	0.11
Benzo(ghi)perylene	CE087	mg/kg	0.38
PAH (total of USEPA 16)	CE087	mg/kg	9.17
BTEX & TPH			
Benzene	CE192	mg/kg	<0.01
Toluene	CE192	mg/kg	<0.01
Ethylbenzene	CE192	mg/kg	<0.01
m & p-Xylene	CE192	mg/kg	<0.02
o-Xylene	CE192	mg/kg	<0.01

Chemtech Environmental Limited

SOLIDS

Lab number			133312-1
Sample id			DM1
Depth (m)			-
Date sampled			14/05/2024
Test	Method	Units	
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	9.58
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	8.49
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	40.79
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	180.55
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	50.50
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<1
EPH Aliphatic (>C12-C16)	CE250	mg/kg	2
EPH Aliphatic (>C16-C35)	CE250	mg/kg	78
EPH Aliphatic (>C35-C44)	CE250	mg/kg	37
Subcontracted Analysis			
Asbestos (qualitative)	\$	-	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOLIDS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE264	Arsenic (total)	Aqua Regia Extraction, ICPOES	Dry		1.8	mg/kg As
CE264	Beryllium (total)	Aqua Regia Extraction, ICPOES	Dry		0.2	mg/kg Be
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry		1	mg/kg B
CE264	Cadmium (total)	Aqua Regia Extraction, ICPOES	Dry		1.6	mg/kg Cd
CE264	Chromium (total)	Aqua Regia Extraction, ICPOES	Dry		2	mg/kg Cr
CE208	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE263	Chromium (VI)	Discrete Analyser	Dry			mg/kg CrVI
CE264	Copper (total)	Aqua Regia Extraction, ICPOES	Dry		1.6	mg/kg Cu
CE264	Lead (total)	Aqua Regia Extraction, ICPOES	Dry		2.3	mg/kg Pb
CE264	Mercury (total)	Aqua Regia Extraction, ICPOES	Dry		0.7	mg/kg Hg
CE264	Nickel (total)	Aqua Regia Extraction, ICPOES	Dry		2.1	mg/kg Ni
CE264	Selenium (total)	Aqua Regia Extraction, ICPOES	Dry		3	mg/kg Se
CE264	Vanadium (total)	Aqua Regia Extraction, ICPOES	Dry		1.8	mg/kg V
CE264	Zinc (total)	Aqua Regia Extraction, ICPOES	Dry		4	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received		-	units
CE087	Naphthalene	Solvent extraction, GC-MS	As received		0.016	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received		0.015	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received		0.013	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received		0.013	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received		0.014	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received		0.017	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received		0.017	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received		0.016	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received		0.012	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received		0.028	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received		0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received		0.025	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received		0.019	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received		0.019	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received		0.017	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received		0.019	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.028	mg/kg
CE192	Benzene	Headspace GC-FID	As received		0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received		0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received		0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received		0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		0.6	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1.5	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		4.5	mg/kg

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METHOD DETAILS

METHOD	SOLIDS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		2	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		0.5	mg/kg
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		3	mg/kg
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		0.5	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Soil/Solid samples will be disposed of 4 weeks from initial receipt unless otherwise agreed.

Waters and leachate samples will be disposed of 2 weeks from report issue unless otherwise agreed.

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BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones, where applicable.

Moisture Content Calculated on a Wet Weight basis

Human Health Assessment Summary - Soils Test Data			Soil Type:			Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	
						Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall	Eaton Hall
			Laboratory Reference No.			Topsoil	TS1	TS2	TS3	TS4	TS5	TS6	TS7	TS8	TS9	TS10	TS11	TS12	TS13	
						TOHA/23/1	136/SS	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	23-16922	
Contaminant	GAC (mg/kg)	No. Samples	Min. Value	Max. Value	No. Samples ≥GAC															
Moisture Content	-	0	0.00	<LOD	-															
Soil Organic Matter	-	1	2.50	2.50	-	2.5														
pH	-	14	7.81	8.50	-	8.5	7.9	8.3	8.1	7.9	7.9	7.8	7.9	7.8	8.0	8.0	7.9	7.9	8.0	
Arsenic	40	14	2.00	5.10	0	2.0	3.5	3.1	3.3	3.6	3.7	5.1	4.0	3.8	3.3	3.4	3.2	3.6	3.5	
Cadmium	85	14	0.10	0.10	0	<0.2	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Chromium (III)	910	14	3.00	62.10	0	3.0	60.9	60.5	62.1	55.9	37.1	34.6	32.8	36.1	40.4	36.7	58.1	39.0	56.8	
Hexavalent Chromium (VI)	6	14	0.00	<LOD	0	<1.8	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Copper	7100	14	8.00	23.00	0	10.0	15.0	13.0	15.0	18.0	17.0	15.0	18.0	17.0	23.0	15.0	14.0	8.0	15.0	
Lead	310	14	5.00	29.00	0	8.0	22.0	18.0	22.0	29.0	21.0	21.0	20.0	26.0	19.0	19.0	18.0	5.0	20.0	
Mercury	1.2	14	0.10	0.10	0	<0.3	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Nickel	180	14	4.00	10.50	0	4.0	8.1	7.2	10.1	8.9	8.0	8.1	9.2	9.0	8.5	7.4	7.3	10.5	8.4	
Selenium	430	14	0.00	<LOD	0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Zinc	40000	14	19.00	49.00	0	19.0	43.0	35.0	42.0	49.0	42.0	40.0	43.0	45.0	38.0	38.0	38.0	20.0	40.0	
Cyanide (free)	34	1	0.00	<LOD	0	<1														
Phenol (total)	440	1	0.00	<LOD	0	<1														
Naphthalene	2.3	14	0.00	<LOD	0	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Acenaphthylene	2900	14	0.00	<LOD	0	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
Acenaphthene	3000	14	0.00	<LOD	0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	2800	14	0.00	<LOD	0	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Phenanthrene	1300	14	0.04	0.90	0	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.90	0.04	0.11	<0.03	<0.03	<0.03	<0.03	
Anthracene	31000	14	0.00	<LOD	0	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Fluoranthene	1500	14	0.07	0.32	0	<0.05	0.09	0.12	0.11	0.10	0.08	0.11	0.30	0.12	0.32	0.07	0.09	0.11	0.09	
Pyrene	3700	14	0.06	0.27	0	<0.05	0.08	0.09	0.09	0.07	0.06	0.08	0.26	0.08	0.27	0.06	0.08	0.08	0.07	
Benzo(a)anthracene	11	14	0.07	0.22	0	<0.05	<0.06	0.07	0.09	<0.06	<0.06	0.08	0.22	0.07	0.19	<0.06	0.07	0.07	0.07	
Chrysene	30	14	0.06	0.22	0	<0.05	0.06	0.07	0.07	0.06	0.06	0.07	0.22	0.07	0.19	0.06	0.06	0.07	0.07	
Benzo(b)fluoranthene	3.9	14	0.06	0.29	0	<0.05	0.08	0.09	0.10	0.08	0.06	0.09	0.29	0.08	0.21	0.07	0.07	0.09	0.09	
Benzo(k)fluoranthene	110	14	0.03	0.11	0	<0.05	0.03	0.04	0.04	0.03	0.03	0.04	0.11	0.03	0.08	0.03	0.03	0.04	0.03	
Benzo(a)pyrene	2.2	14	0.05	0.23	0	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	0.23	0.05	0.16	<0.04	0.06	0.06	0.06	
Indeno(1,2,3-cd)pyrene	45	14	0.05	0.18	0	<0.05	<0.04	0.05	0.07	<0.04	<0.04	0.06	0.18	0.06	0.09	<0.04	<0.04	0.06	0.06	
Dibenz(a,h)anthracene	0.31	14	0.00	<LOD	0	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Benzo(ghi)perylene	360	14	0.05	0.18	0	<0.05	<0.04	0.06	0.07	<0.04	0.05	0.06	0.18	0.05	0.11	<0.04	0.05	0.06	0.06	
Asbestos Detected (Detected or Not-Detected)	Y	14	0.00	0.00	0	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	Not-Detected	
Asbestos Quantification (% w/w)	0.001	0	0.00	<LOD	0															
Petroleum Hydrocarbons Aliphatic >EC5-EC6	42	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aliphatic >EC6-EC8	100	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aliphatic >EC8-EC10	27	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aliphatic >EC10-EC12	130	14	0.00	<LOD	0	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Petroleum Hydrocarbons Aliphatic >EC12-EC16	1100	14	0.00	<LOD	0	<2	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
Petroleum Hydrocarbons Aliphatic >EC16-EC35	65000	14	14.00	85.00	0	<16	47.0	14.0	19.0	85.0	30.0	39.0	34.0	64.0	39.0	14.0	65.0	36.0	36.0	
Petroleum Hydrocarbons Aromatic >EC5-EC7	370	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aromatic >EC7-EC8	860	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aromatic >EC8-EC10	47	14	0.00	<LOD	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Petroleum Hydrocarbons Aromatic >EC10-EC12	250	14	0.00	<LOD	0	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Petroleum Hydrocarbons Aromatic >EC12-EC16	1800	14	0.00	<LOD	0	<2	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
Petroleum Hydrocarbons Aromatic >EC16-EC21	1900	14	9.00	15.00	0	<10	11.0	9.0	9.0	15.0	<7	<7	<7	<7	<7	<7	<7	<7	<7	
Petroleum Hydrocarbons Aromatic >EC21-EC35	1900	14	76.00	181.00	0	<10	102.0	102.0	96.0	181.0	105.0	113.0	86.0	97.0	81.0	98.0	97.0	111.0	76.0	
Benzene	0.38	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Toluene	880	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Ethyl benzene	83	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
o-Xylene	88	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
m- & p-Xylene	161	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
MTBE	49	14	0.00	<LOD	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Mean Average SOM 2.5																				
Mean Average pH 8.0																				
Residential without Homegrown Produce 1% SOM						Values in RED are > the relevant screening levels and further assessment is required. Exceedance of the screening levels alone may not mean a risk is posed														
Job Number: C5394																				
Client: Morgan Sindall																				
Site: Star Academy, Radcliffe																				



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Nathan Birchenall
Tarmac Topscape
Manchester Road
Congleton
Cheshire, CW12 2LU

23rd October 2023
Our Ref: TOHA/23/1136/SS
Your Ref: PO 2002663335

Dear Sirs

Topsoil Analysis Report: Topscape Topsoil (Eaton Hall)

We have completed the analysis of the soil sample recently submitted, referenced *Topscape Topsoil (Eaton Hall)*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the Tarmac Topscape site.

SAMPLE EXAMINATION

The sample was described as a brown (Munsell Colour 10YR 4/3), slightly moist, friable, very slightly calcareous LOAMY SAND with a weakly developed, very fine to fine granular structure*. The sample was stone-free and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

Tim O'Hare Associates LLP
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www.toha.co.uk

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Detailed Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. Further detailed particle size analysis found the sample to have a sufficiently narrow particle size distribution and a predominance of *medium sand* (0.25-0.50mm). This is usually ideal for topsoil in general landscape applications as reasonable porosity levels can be maintained in a consolidated state and the risk of particle interpacking is reduced. This type of grading therefore normally provides adequate water attenuation, drainage and aeration properties for general landscape applications.

The stone content of the sample was stone free and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.5). This pH value would be considered suitable for general landscape purposes provided species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 µS/cm) given in BS3882:2015 – Table 1.

Organic Matter and Fertility Status

The sample was well supplied with extractable phosphorus, extractable potassium and extractable magnesium but was deficient in organic matter and total nitrogen. These deficiencies can be remedied by a suitable compost application.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, very slightly calcareous, stone free *loamy sand* with an adequate structure. The sample contained sufficient reserves of most major plant nutrients but was deficient in organic matter and total nitrogen. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided the organic matter and total nitrogen deficiencies are addressed, species with a wide pH tolerance or those known to prefer alkaline soils are selected and the physical condition of the soil is satisfactory.

The sample was largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*) with the exception of deficient levels of organic matter and total nitrogen.

On this occasion, these non-compliances would be considered minor when reviewed in the context of all the other results, and the deficiencies are addressed by a suitable compost application.

RECOMMENDATIONS

Compost Application

To address the deficiencies in organic matter and total nitrogen, we recommend applying and incorporating suitable compost (e.g. PAS100:2011 /Landscape Institute/WRAP grade (10mm screened) green compost) at a rate of **15%** by volume, ensuring the soil is dry and friable.

For planting purposes, the compost should be incorporated to a depth of 200mm and for grass areas the compost should be worked into the upper 100mm.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is sufficiently dry to be non-plastic (friable) in consistency.

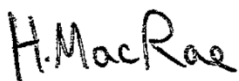
It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of

soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of BS3882:2015.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Harriet MacRae
BSc MSc
Graduate Soil Scientist



Rebecca Hollands
BSc MSc MScSoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE



4225



Attention : Eve Rowland
Date : 19th October, 2023
Your reference : TE1438
Our reference : Test Report 23/16922 Batch 1
Location : Eaton Hall
Date samples received : 12th October, 2023
Status : Final Report
Issue : 1

Sixteen samples were received for analysis on 12th October, 2023 of which sixteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 57.92 kg of CO2

Scope 1&2&3 emissions - 136.88 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland
EMT Job No: 23/16922

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	Please see attached notes for all abbreviations and acronyms		
Sample ID	TS1	TS2	TS3	TS4	TS5	TS6	TS7	TS8	TS9	TS10			
Depth													
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023			
Arsenic [#]	3.5	3.1	3.3	3.6	3.7	5.1	4.0	3.8	3.3	3.4	<0.5	mg/kg	TM30/PM15
Cadmium [#]	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Chromium [#]	60.9	60.5	62.1	55.9	37.1	34.6	32.8	36.1	40.4	36.7	<0.5	mg/kg	TM30/PM15
Copper [#]	15	13	15	18	17	15	18	17	23	15	<1	mg/kg	TM30/PM15
Lead [#]	22	18	22	29	21	21	20	26	19	19	<5	mg/kg	TM30/PM15
Mercury [#]	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel [#]	8.1	7.2	10.1	8.9	8.0	8.1	9.2	9.0	8.5	7.4	<0.7	mg/kg	TM30/PM15
Selenium [#]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Total Sulphate as SO4 [#]	257	242	266	302	290	279	291	346	267	305	<50	mg/kg	TM50/PM29
Zinc [#]	43	35	42	49	42	40	43	45	38	38	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene [#]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene [#]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene [#]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.09	0.04	0.11	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene [#]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene [#]	0.09	0.12	0.11	0.10	0.08	0.11	0.30	0.12	0.32	0.07	<0.03	mg/kg	TM4/PM8
Pyrene [#]	0.08	0.09	0.09	0.07	0.06	0.08	0.26	0.08	0.27	0.06	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	<0.06	0.07	0.09	<0.06	<0.06	0.08	0.22	0.07	0.19	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene [#]	0.06	0.07	0.07	0.06	0.06	0.07	0.22	0.07	0.19	0.06	<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene [#]	0.11	0.13	0.14	0.11	0.09	0.13	0.40	0.11	0.29	0.10	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	0.23	0.05	0.16	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	<0.04	0.05	0.07	<0.04	<0.04	0.06	0.18	0.06	0.09	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	<0.04	0.06	0.07	<0.04	0.05	0.06	0.18	0.05	0.11	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	0.6	<0.6	<0.6	0.7	2.1	0.7	1.7	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.08	0.09	0.10	0.08	0.06	0.09	0.29	0.08	0.21	0.07	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.03	0.04	0.04	0.03	0.03	0.04	0.11	0.03	0.08	0.03	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	115	113	113	112	113	113	114	111	113	111	<0	%	TM4/PM8
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) [#]	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) [#]	<7	<7	<7	<7	<7	<7	<7	14	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) [#]	40	<7	12	78	23	32	27	50	32	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	<7	11	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	40	<26	<26	89	<26	32	27	64	32	<26	<26	mg/kg	TM5/PM8/PM16

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland
EMT Job No: 23/16922

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland
EMT Job No: 23/16922

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48					Please see attached notes for all abbreviations and acronyms		
Sample ID	TS11	TS12	TS13	SS1	SS2	SS3							
Depth													
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023	12/10/2023					LOD/LOR	Units	Method No.
Arsenic #	3.2	3.6	3.5	3.9	3.3	3.9					<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM30/PM15
Chromium #	58.1	39.0	56.8	37.3	40.8	37.6					<0.5	mg/kg	TM30/PM15
Copper #	14	8	15	11	16	10					<1	mg/kg	TM30/PM15
Lead #	18	5	20	<5	19	<5					<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM30/PM15
Nickel #	7.3	10.5	8.4	13.2	7.8	13.4					<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	286	58	324	52	264	<50					<50	mg/kg	TM50/PM29
Zinc #	38	20	40	22	42	21					<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.09	0.11	0.09	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Pyrene #	0.08	0.08	0.07	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.07	0.07	0.07	<0.06	<0.06	<0.06					<0.06	mg/kg	TM4/PM8
Chrysene #	0.06	0.07	0.07	<0.02	<0.02	<0.02					<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene #	0.10	0.13	0.12	<0.07	<0.07	<0.07					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.06	0.06	0.06	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	0.06	0.06	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.05	0.06	0.06	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	0.6	0.6	<0.6	<0.6	<0.6					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.07	0.09	0.09	<0.05	<0.05	<0.05					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.03	0.04	0.03	<0.02	<0.02	<0.02					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	110	115	115	131	114	118					<0	%	TM4/PM8
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	10	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	55	29	29	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	65	29	29	<26	<26	<26					<26	mg/kg	TM5/PM8/PM16/PM12/PM15

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland
EMT Job No: 23/16922

Report : Solid

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

[illegible]

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/16922	1	TS1		3	Bart Kuznicki	13/10/2023	General Description (Bulk Analysis)	Brown Loose soil with stones
					Bart Kuznicki	13/10/2023	Asbestos Fibres	NAD
					Bart Kuznicki	13/10/2023	Asbestos ACM	NAD
					Bart Kuznicki	13/10/2023	Asbestos Type	NAD
23/16922	1	TS2		6	Bart Kuznicki	13/10/2023	General Description (Bulk Analysis)	Brown Loose soil with stones
					Bart Kuznicki	13/10/2023	Asbestos Fibres	NAD
					Bart Kuznicki	13/10/2023	Asbestos ACM	NAD
					Bart Kuznicki	13/10/2023	Asbestos Type	NAD
23/16922	1	TS3		9	Bart Kuznicki	13/10/2023	General Description (Bulk Analysis)	Brown Loose soil with stones
					Bart Kuznicki	13/10/2023	Asbestos Fibres	NAD
					Bart Kuznicki	13/10/2023	Asbestos ACM	NAD
					Bart Kuznicki	13/10/2023	Asbestos Type	NAD
23/16922	1	TS4		12	Bart Kuznicki	13/10/2023	General Description (Bulk Analysis)	Brown Loose soil with stones
					Bart Kuznicki	13/10/2023	Asbestos Fibres	NAD
					Bart Kuznicki	13/10/2023	Asbestos ACM	NAD
					Bart Kuznicki	13/10/2023	Asbestos Type	NAD
23/16922	1	TS5		15	Catherine Coles	17/10/2023	General Description (Bulk Analysis)	brown soil,vegetation
					Catherine Coles	17/10/2023	Asbestos Fibres	NAD
					Catherine Coles	17/10/2023	Asbestos ACM	NAD
					Catherine Coles	17/10/2023	Asbestos Type	NAD
23/16922	1	TS6		18	Catherine Coles	17/10/2023	General Description (Bulk Analysis)	brown soil,vegetation
					Catherine Coles	17/10/2023	Asbestos Fibres	NAD
					Catherine Coles	17/10/2023	Asbestos ACM	NAD
					Catherine Coles	17/10/2023	Asbestos Type	NAD
23/16922	1	TS7		21	Charlotte Taylor	17/10/2023	General Description (Bulk Analysis)	brown soil/stones
					Charlotte Taylor	17/10/2023	Asbestos Fibres	NAD
					Charlotte Taylor	17/10/2023	Asbestos ACM	NAD
					Charlotte Taylor	17/10/2023	Asbestos Type	NAD
23/16922	1	TS8		24	Emily Anderton	17/10/2023	General Description (Bulk Analysis)	Brown soil with vegetation
					Emily Anderton	17/10/2023	Asbestos Fibres	NAD
					Emily Anderton	17/10/2023	Asbestos ACM	NAD
					Emily Anderton	17/10/2023	Asbestos Type	NAD

Client Name: Tier Environmental
Reference: TE1438
Location: Eaton Hall
Contact: Eve Rowland

[illegible]

Client Name: Tier Environmental

Reference: TE1438

Location: Eaton Hall

Contact: Eve Rowland

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/16922

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/16922

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

EMT Job No: 23/16922

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No