



EARTH ENVIRONMENTAL  
& GEOTECHNICAL

## Asbestos Management Plan

38 Broughton Street

Manchester

October 2020

On behalf of

Risky Clothing Company Limited



Earth Environmental & Geotechnical Ltd  
Houldsworth Mill Business & Arts Centre  
Houldsworth Street  
Stockport, Cheshire, SK5 6DA

Tel : 0161 9756088

Email [info@earthenvironmental.co.uk](mailto:info@earthenvironmental.co.uk)  
[www.earthenvironmental.co.uk](http://www.earthenvironmental.co.uk)



## **ASBESTOS MANAGEMENT PLAN**

**38 BROUGHTON STREET**

**MANCHESTER**

**Report Ref: A3434/20/AMP**

**October 2020**

Prepared on Behalf of:

**Risky Clothing Company Ltd**

By:

Earth Environmental & Geotechnical Ltd  
Houldsworth Mill Business Centre  
Houldsworth Street  
Stockport  
SK5 6DA

DISTRIBUTION:

1 electronic copy

**Risky Clothing Company Ltd**

|                          |                                                                     |                      |
|--------------------------|---------------------------------------------------------------------|----------------------|
| <b>Report Title:</b>     | <b>38 Broughton Street, Manchester<br/>Asbestos Management Plan</b> |                      |
| <b>Report Reference:</b> | <b>A3434/20/AMP</b>                                                 |                      |
| <b>Client:</b>           | <b>Risky Clothing Company Ltd</b>                                   |                      |
| <b>Issue Date:</b>       | <b>7<sup>th</sup> October 2020</b>                                  |                      |
| <b>Drafted By:</b>       | <b>Dr. S McLoughlin</b>                                             | <i>S. McLoughlin</i> |
| <b>Reviewed By:</b>      | <b>A Czarnecki</b>                                                  | <i>A Czarnecki</i>   |
| <b>Authorised By:</b>    | <b>A Czarnecki</b>                                                  | <i>A Czarnecki</i>   |

This document has been prepared for the titled project (or named part thereof) and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authorisation being obtained from Earth Environmental & Geotechnical. Earth Environmental & Geotechnical accepts no responsibility or liability for the consequences of the use of this document, wholly or in part, for any other purpose than that for which it was commissioned. Any persons so using or relying upon this document for such other purpose do so at their own risk.

This report was prepared for the sole use of the Client and shall not be relied upon or transferred to any other party without the express written authorisation of Earth Environmental & Geotechnical. It may contain material subject to copyright or obtained subject to license; unauthorised copying of this report will be in breach of copyright/license.

The findings and opinions provided in this document are given in good faith and are subject to the limitations imposed by employing site assessment methods and techniques, appropriate to the time of investigation and within the limitations and constraints defined within this document. The findings and opinions are relevant to the dates when the assessment was undertaken, but should not necessarily be relied upon to represent conditions at a substantially later date.

The findings and opinions conveyed in this report are based on information obtained from a variety of sources as detailed and which Earth Environmental & Geotechnical assumes to be reliable, but have not been independently confirmed. Therefore, Earth Environmental & Geotechnical cannot and does not guarantee the authenticity or reliability of third-party information it has relied upon.

Where opinions expressed in this report are based on current available guidelines and legislation, no liability can be accepted by Earth Environmental & Geotechnical for the effects of any future changes to such guidelines and legislation.

The limitations of liability of Earth Environmental & Geotechnical for the contents of this document have been agreed with the Client, as set out in the terms and conditions of offer and related contract documentation.

## CONTENTS

|            |                                                       |           |
|------------|-------------------------------------------------------|-----------|
| <b>1.0</b> | <b>INTRODUCTION .....</b>                             | <b>1</b>  |
|            | PROPOSED DEVELOPMENT .....                            | 1         |
|            | BACKGROUND .....                                      | 1         |
|            | IDENTIFIED ASBESTOS.....                              | 2         |
|            | OBJECTIVES.....                                       | 3         |
| <b>2.0</b> | <b>ASBESTOS RISK ASSESSMENT .....</b>                 | <b>4</b>  |
|            | SITE SETTING .....                                    | 4         |
|            | GENERAL QUALITATIVE RISK ASSESSMENT .....             | 4         |
|            | CLASSIFICATION OF WORKS.....                          | 4         |
|            | SITE SPECIFIC SEMI-QUANTITATIVE RISK ASSESSMENT ..... | 4         |
|            | PATHWAY AND RECEPTOR SENSITIVITY .....                | 6         |
|            | OVERALL RISK ASSESSMENT .....                         | 6         |
| <b>3.0</b> | <b>ASBESTOS CONTROL MEASURES .....</b>                | <b>8</b>  |
|            | STOCKPILING.....                                      | 8         |
|            | DUST CONTROL.....                                     | 8         |
|            | REASSURANCE AIR MONITORING .....                      | 9         |
|            | ASBESTOS WASTE .....                                  | 9         |
| <b>4.0</b> | <b>PERSONAL PROTECTIVE EQUIPMENT (PPE) .....</b>      | <b>10</b> |
|            | OVERALLS .....                                        | 10        |
|            | GLOVES .....                                          | 10        |
|            | BOOTS .....                                           | 10        |
|            | RESPIRATORY PROTECTIVE EQUIPMENT .....                | 10        |
| <b>5.0</b> | <b>ASBESTOS AIR MONITORING.....</b>                   | <b>11</b> |
|            | REASSURANCE AIR MONITORING PROCEDURES .....           | 11        |
|            | BOUNDARY MONITORING .....                             | 11        |
|            | WORKING AREA.....                                     | 11        |
|            | PERSONAL MONITORING .....                             | 12        |
|            | RESULTS.....                                          | 12        |
| <b>6.0</b> | <b>UNEXPECTED ASBESTOS CONTAMINATION .....</b>        | <b>13</b> |
|            | EMERGENCY RESPONSE PROCEDURES .....                   | 13        |
|            | PERSONAL DECONTAMINATION .....                        | 13        |
| <b>7.0</b> | <b>RECORD KEEPING AND VERIFICATION.....</b>           | <b>15</b> |
|            | RECORD KEEPING.....                                   | 15        |

## APPENDICES

|            |                           |
|------------|---------------------------|
| Appendix A | Regulatory Framework      |
| Appendix B | Chemical Analysis Results |

## FIGURES

|          |                                  |
|----------|----------------------------------|
| Figure 1 | Proposed Development Plan        |
| Figure 2 | Location of Encountered Asbestos |

## TABLES

|         |                           |
|---------|---------------------------|
| Table 1 | Hazard Factors            |
| Table 2 | Exposure Factors          |
| Table 3 | Groundworkers             |
| Table 4 | Public/Adjacent Residents |
| Table 5 | Risk Assessment Outputs   |

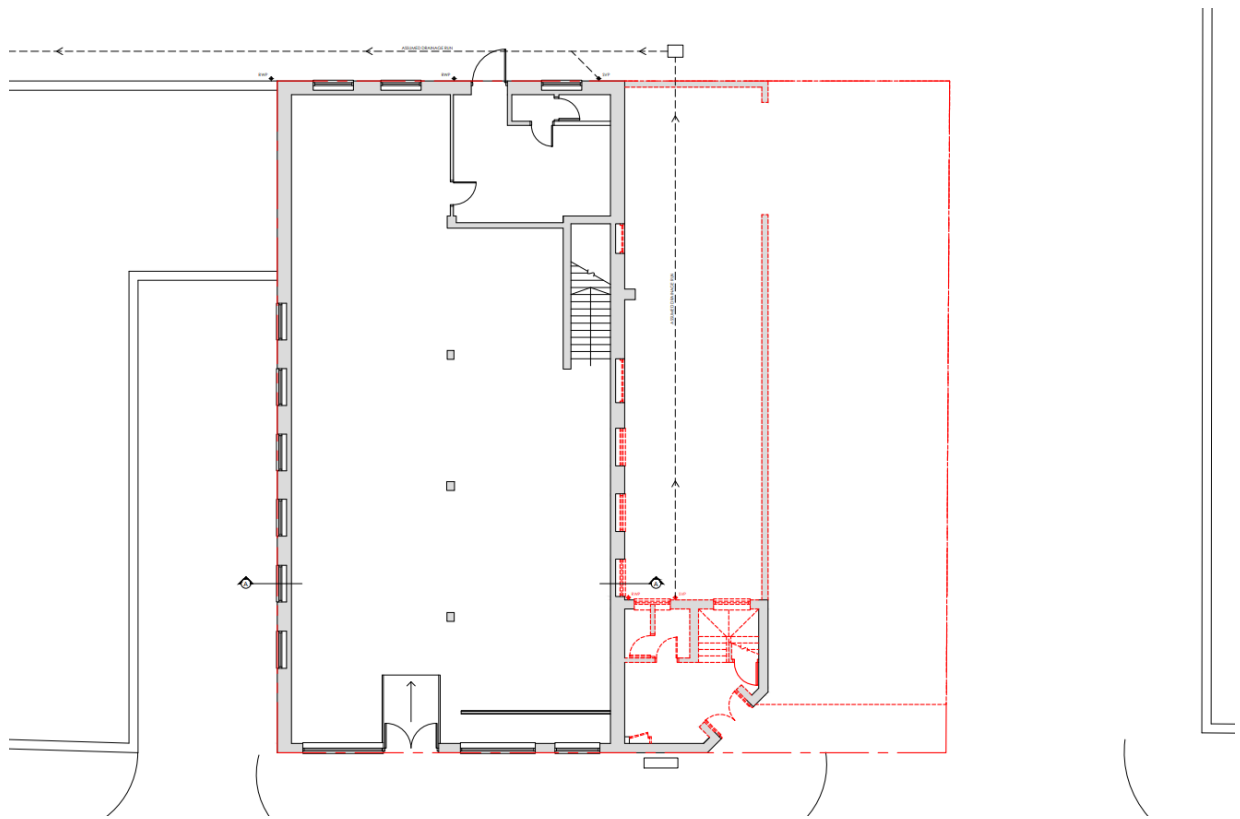
## 1.0 INTRODUCTION

Earth Environmental and Geotechnical Ltd (EEG Ltd) have been instructed by Risky Clothing Company Ltd to prepare an Asbestos Management Plan for land at 38 Broughton Street, Manchester.

### Proposed Development

It is understood that the proposed development will involve an extension of the existing commercial building and demolition of the existing metal rail fence. The proposed development layout of the site is shown in Figure 1 below.

**Figure 1 Proposed Development Layout**



### Background

The following reports have previously been prepared by EEG and should be read in conjunction with this Asbestos Management Plan:

- GeoEnvironmental Investigation Report 38 Broughton Street (Reference: A3434/20 B.1) August 2020.
- GeoEnvironmental Desk Study 38 Broughton Street (Reference A3434/20) March 2020.

Earth Environmental & Geotechnical submitted soil samples collected during the Site Investigation to a UKAS/MCERTS accredited laboratory; DETS for chemical analysis and assessed the results.

Full results of the chemical testing and asbestos quantification from the ground investigation are presented in Appendix B.

### Identified Asbestos

The results of the chemical analysis identified asbestos (bundles of chrysotile fibres) at location WS02 at 0.40m below ground level. The asbestos was quantified to be 0.012% wt/wt.

Although there is no published threshold value for asbestos in soils, the laboratory limit of detection (LOD) level of 0.001% is often used as a level above which it is considered possible that asbestos fibres may become airborne when disturbed.

A plan showing the location of the encountered Asbestos in WS02 is presented as Figure 2 below.

**Figure 2 Location of Encountered Asbestos**



There is a high probability that asbestos containing materials (ACM) will also be present away from and in between sampling locations. There is therefore potential for release of free fibres during construction activities, an Asbestos Management Plan (AMP) is required to protect construction workers and site neighbours from the risks associated with airborne asbestos fibres during construction and enabling works.

The Asbestos Management Plan will outline methods to significantly reduce the risk from asbestos i.e. removal of visible fragments (if present), dust suppression measures and reassurance air monitoring (if necessary). The remediation contractor should employ or train site managers in the identification of ACM and deploy the control measures detailed within this Management Plan should any ACMs be identified anywhere on site.

The guidance within this Management Plan should therefore be followed during **all** associated site works.

## **Objectives**

Mechanical excavation of soils containing Asbestos will cause disturbance and possible release of free fibres, therefore the works should be planned, controlled and reviewed in accordance with the AMP in order to minimise the potential risk to workers and members of the public.

This detailed Asbestos Management Plan will incorporate the following:

- Monitoring requirements for works;
- Emergency protocols and actions in the event of unexpected contamination or exceedance of imposed trigger limits;
- Programme of on-site training to ensure all ground workers are adequately trained in asbestos awareness and appropriate mitigation measures;
- Detailed methodology for the excavation of potentially asbestos impacted soils and redepositing in a safe controlled manner, including on-site dust suppressant;
- Specification of on-site asbestos air monitoring (HSG248) to demonstrate the levels of control as detailed within the site-specific method statement are completely protective of human health; and
- Schedule for on-site validation protocols to demonstrate the method statement has been successfully implemented.

In addition, the works will be monitored to provide supporting evidence to the working methodologies and to demonstrate that public and civil liabilities are not put at risk.

## **2.0 ASBESTOS RISK ASSESSMENT**

### **Site Setting**

The site is located 2km north of Manchester City Centre. The approximate National Grid Reference for the centre of this site is SJ 84021 99997 (X: 384022, Y: 399995) with the closest postcode being M8 8NN.

The site is a square shaped parcel of land with access via Broughton Street to the southwest. The maximum dimensions of the site are 31m northwest to southeast and 31m northeast to southwest. The site occupies an area of approximately 0.05Ha.

The site is currently occupied by a singular commercial building located on the western side of the property. The remainder of the site is completely covered by concrete. The eastern boundary and part of the north and south boundaries are bordered by palisade fencing. The western border is contained within the current building walls.

The immediate surrounding area is commercial. There is a garage 100m to the southeast and 160m to the northeast.

### **General Qualitative Risk Assessment**

Asbestos is predominantly a hazard to human health through the inhalation of airborne fibrous crystals less than 10 microns in size (PM10). Fibres of this size may enter the lungs, causing disease and cancer (Mesothelioma). Where asbestos is bound within a solid matrix that cannot easily release particles of PM10 size, or is clumped together into large particles, or is fixed within soils by adhesion to other matter and water (and thus cannot easily be inhaled / ingested), then it presents a significantly lower hazard.

### **Classification of Works**

In accordance with Asbestos in Soil and Made Ground good practice site guide CIRIA 765 2017 guidance, the works are considered to be Non-Notifiable Non-Licensed Work under CAR 2012.

### **Site Specific Semi-Quantitative Risk Assessment**

A semi-quantitative risk assessment has been carried out as a decision support tool to aid in the categorisation of work activities in accordance with the CAR 2012 regulations.

**Table 1: Hazard Factors**

| Variable                                              | Setting                                                                                       | Score      |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------|
| ACM Type                                              | Free Dispersed fibres/fibre bundles                                                           | 2          |
| Degree of Bonding?                                    | Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles) | 4          |
| Extent of degradation of ACMs at outset of work       | Disaggregated (dominated by loose fibre bundles)                                              | 4          |
| Distribution of Visible Asbestos Across Affected Area | No visible contamination by ACMs                                                              | 0          |
| Asbestos Fibre Type                                   | Chrysotile                                                                                    | 0          |
| <b>Total</b>                                          |                                                                                               | <b>10</b>  |
| <b>Hazard Ranking</b>                                 |                                                                                               | <b>Low</b> |

**Table 2: Exposure Factors**

| Variable                                                                  | Setting                                              | Score         |
|---------------------------------------------------------------------------|------------------------------------------------------|---------------|
| Amount of asbestos fibre in selected ACM/fibre type as % of host material | Low Quantities <0.01 to <0.05%wt/wt                  | 2             |
| Respirable fibre index for source material                                | Low                                                  | 2             |
| Activity type and effect on deterioration of ACMs                         | High disturbance, significant deterioration expected | 4             |
| Best description of primary host material matrix                          | Made Ground – Recycled Aggregate, Track Ballast      | 4             |
| <b>Total</b>                                                              |                                                      | <b>12</b>     |
| <b>Exposure Ranking</b>                                                   |                                                      | <b>Medium</b> |
| <b>Combined hazard &amp; exposure ranking</b>                             |                                                      | <b>Medium</b> |

## Pathway and Receptor Sensitivity

**Table 3: Groundworkers**

| Variable                                                  | Setting                                                                                                       | Score         |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------|
| Receptor Category                                         | Construction                                                                                                  | N/A           |
| Duration of Exposure                                      | > 1hr <10 hr daily exposure (e.g. part-time to full time occupational / extended daily recreational exposure) | 3             |
| Receptor Age                                              | Adult (>24 and <60)                                                                                           | 1             |
| <b>Total</b>                                              |                                                                                                               | <b>4</b>      |
| <b>Receptor Ranking</b>                                   |                                                                                                               | <b>Low</b>    |
| Distance from Source                                      | In or within 10m of area of disturbance                                                                       | 4             |
| Depth to Impacted Material                                | Material present near the surface, potential to be disturbed during routine use of land                       | D             |
| <b>Calculated sub-total ((duration + age) x distance)</b> |                                                                                                               | <b>8</b>      |
| <b>Pathway Ranking</b>                                    |                                                                                                               | <b>Medium</b> |
| <b>Combined hazard, exposure and receptor ranking</b>     |                                                                                                               | <b>Low</b>    |

**Table 4: Public & Adjacent Commercial Neighbours**

| Variable                                                  | Setting                                                                                 | Score           |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------|
| Receptor Category                                         | Commercial/industrial                                                                   | N/A             |
| Duration of Exposure                                      | < 1 hour in any single day (e.g. frequent but short exposure event)                     | 1               |
| Receptor Age                                              | Adult (>24 and <60)                                                                     | 1               |
| <b>Total</b>                                              |                                                                                         | <b>2</b>        |
| <b>Receptor Ranking</b>                                   |                                                                                         | <b>Very Low</b> |
| Distance from Source                                      | In or within 10m of area of disturbance                                                 | 4               |
| Depth to Impacted Material                                | Material present near the surface, potential to be disturbed during routine use of land | D               |
| <b>Calculated sub-total ((duration + age) x distance)</b> |                                                                                         | <b>6</b>        |
| <b>Pathway Ranking</b>                                    |                                                                                         | <b>Medium</b>   |
| <b>Combined hazard, exposure and receptor ranking</b>     |                                                                                         | <b>Low</b>      |

## Overall Risk Assessment

The asbestos encountered at the site has been quantified as 0.012% (Chrysotile). There is potential risk for release of Asbestos fibres into the air following disturbance of the material as part of the proposed works. Once airborne, the fibres could impact upon construction workers or site neighbours.

**Table 5: Risk Assessment Outputs\***

| Control Measures          | Requirement                                                 |
|---------------------------|-------------------------------------------------------------|
| Probable Licensing Status | Non-Licensed Work                                           |
| RPE                       | EN140 with P3 filter half mask                              |
| Dust Suppression          | Localised mechanical dust suppression                       |
| Hygiene/Decontamination   | Localised and enhanced personal decontamination facilities. |

\*Guide only; suitability of control measures are to be dynamically assessed as the job progresses.

Based on the above JIWG assessment in accordance with CAR2012, the overall risk is concluded at this stage to be **LOW**.

### 3.0 ASBESTOS CONTROL MEASURES

Where asbestos is present, the duty holder (in this case the Principal Contractor), has a statutory legal responsibility to have a written Asbestos Management Plan, this should be compiled to make personnel who are to work on the site aware of the presence of asbestos.

Prior to works commencing the following protocols will be adopted:

- Induction of all operatives that will be involved with the proposed works to include a brief outline of works within the site area;
- Tool box talks will be undertaken to highlight risk from ACMs and working methods will be designed to mitigate risks. Toolbox talks will be undertaken regularly to re-communicate the procedures to all operatives;
- All operatives involved with earth movement will have basic asbestos awareness training;
- Assessment and recording of prevailing weather conditions including wind direction;
- In addition, the site induction should specifically address the presence of asbestos fibres in the ground, the PPE and RPE requirements as well as the control measures that are in place on site.

In addition to normal good practice precautions, the presence of asbestos within the ground will require a safe system of work to be set up on site to deal with the asbestos risk. This will include but is not necessarily be limited to:

- The provision of appropriate PPE and RPE;
- Reassurance air monitoring;
- Avoid unnecessary/prolonged exposure of asbestos impacted soils;
- Damping down of soils with water spray to prevent dust generation during ground breaking exercises;
- Sheeting of exposed soils by a geotextile and working clean cover;
- Careful segregation of stockpiles on site;
- Regular damping down of stockpiles;
- Sheeting of stockpiles;
- Defining transport routes;
- Cleaning down of machinery in designated areas;
- Decontamination unit for ground workers;
- The use of qualified personnel where required.

#### Stockpiling

Any excess impacted soil generated will be transported to a dedicated stockpile zone. The dedicated impacted stockpile zone will be located away from any other stockpiles of clean materials (to prevent cross contamination) and the boundary lines, placed on an impermeable membrane and covered.

#### Dust Control

Localised dampening down will be undertaken either manually or using dedicated water bowsers.

When using a water bowser, a good water supply would be required (ideally a stand pipe within or near the site boundary). Water bowzers should be refilled daily to ensure there is dampening down available for the next day. Should the stand pipe be unavailable then additional water storage tanks will be delivered and filled from an outside water source.

Dampening down should be supervised to prevent any uncontrolled water run-off, which may subsequently dry out and become dusty at a location away from the site itself.

### **Reassurance Air Monitoring**

Based on the results of the sampling, it is considered unlikely that the Asbestos Control Limit of 0.1fibres/cm<sup>3</sup> over a continuous 4-hour period would be exceeded (as set out in CAR 2012).

However, given the site setting, it may be prudent to carry out reassurance air monitoring during the excavation works ensure the control limit is not exceeded as an extra precaution.

It is the responsibility of the Principal Contractor to assess the likelihood of exceeding the control limits during any given activity and to ensure that mitigation measures are in place to ensure the Asbestos Control Limit is not exceeded.

Further details for air monitoring procedures are provided in Section 5.

### **Asbestos Waste**

All PPE/RPE and decontamination materials (rags, boot brushes etc) should be placed in asbestos waste bags and disposed of as asbestos waste.

#### 4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

There is a requirement for asbestos specific PPE and Respiratory Protective Equipment (RPE). Reference should be made to HSE EM6 for details regarding using and maintaining non-disposable RPE.

The following PPE methodology is required:

##### Overalls

- Disposable overalls. Type 5 (BS EN ISO 13982-1) are suitable. Cotton overalls hold dust and need specialist laundering and are therefore not suitable;
- Use oversized overalls to prevent ripping at the seams;
- If the cuffs are loose, seal them with tape;
- Avoid wearing a long-sleeved shirt, which may be difficult to cover properly;
- Wear the overall legs over footwear (avoid laced footwear);
- Wear overall hood over the RPE straps.

##### Gloves

- If you wear protective gloves, use single-use disposable gloves. If you must use latex gloves, use only 'low protein powder-free' gloves.

##### Boots

- Boots without laces should be worn. These are easier to clean.

##### Respiratory Protective Equipment

- Use suitable RPE with a UK-assigned protection factor (APF) of 20 or more;
- Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3);
- Half mask respirator (to standard EN140) with P3 filter or semi-disposable respirator (to EN405) with P3 filter.
- This equipment should be suitable for most short-duration non-licensed work and workers should select a make and size that fits them (face fit tests and face fit checks to be carried out);
- This equipment is not suitable for people with beards or stubble – hooded respirators are required for these situations;
- The equipment is also unsuitable for long periods of continuous use; you need power-assisted equipment for such situations.

A de-contamination area should be provided prior to the works commencing for the site operatives that will be present within the working area. This requires a dedicated entry and exit point to the asbestos working zone, boot washing facility, red bags to place used suits into prior to leaving the de-contamination area. No personnel must enter the asbestos working zone without PPE and no personnel wearing PPE must leave the asbestos zone until all PPE is disposed of.

Further details are provided in the following section (Personal Decontamination) and will also be provided during the toolbox talks.

## 5.0 ASBESTOS AIR MONITORING

If carried out, asbestos monitoring works should be conducted in accordance with, but not limited to, the following HSE legislation and guidance:

- Health & Safety at Work Act 1974;
- The Control of Asbestos Regulations 2012;
- Approved Code of Practice L143 “Work with materials containing asbestos”;
- Management of Health and Safety at Work Regulations 1999;
- HSE Guidance Note HSG248 ‘Asbestos, the analysts guide to sampling and analysis’; and,
- HSE Guidance Note HSG247 ‘Asbestos: The licensed contractors’ guide’.

### Reassurance Air Monitoring Procedures

#### Boundary Monitoring

Boundary monitoring would comprise static air monitoring pumps located along the boundary downwind of the active working area. This will allow for a comprehensive assessment of the presence of any airborne fibres which may be transported to the site’s boundary.

Consideration will be given to the use of Dust Deposition Gauges at the site boundary to monitor PM10 (Particulate Matter 10 micron) emissions for the site. Such monitoring will assist in the assessment of off-site dust emissions and ensure that should any statutory nuisance complaints arise the Client/Principal contractor are able to demonstrate that they have not been negligent in their legislative obligations for the works.

The monitoring protocol will be based on a nuisance risk not a health-based risk, in accordance with Environment Agency Technical Guidance Document M17-monitoring of particulate material in ambient air around waste facilities.

There is no official air quality criterion for dust avoidance, however a custom practice limit of 200mg/m<sup>2</sup>/day is used for measurement with dust deposition gauges.

#### Working Area

A series of static air monitoring pumps would be clustered both upwind, downwind and crosswind of the active working area, which would be defined by the analyst and consultant at the start of each monitoring occasion.

An air pump with a flow-rate up to 16litres/minute, battery or mains powered fitted with a calibrated automatic timer would be used.

## **Personal Monitoring**

Personal monitoring pumps would be worn by selective ground workers involved within the active working area.

Personal sampling pumps with a flow rate of 1litres/minute and battery operated would be used.

## **Results**

The samples would be analysed by a UKAS accredited laboratory, and the results would be delivered to the Resident Engineer who will then follow the correct site procedure.

In the event of an elevated result ( $>0.01$ fibres/ml) the contractor will be advised to stop work, and seek the cause and take all necessary actions.

## 6.0 UNEXPECTED ASBESTOS CONTAMINATION

### Emergency Response Procedures

The following procedure will be adopted should an unknown quantity or type of Asbestos be discovered on site, which is not detailed in the SI report or the asbestos location plan, or in the event that an uncontrolled release of asbestos occurs unexpectedly during the works.

- Warn anybody who may be affected;
- Exclude from the area anyone not needed to deal with the release;
- Report the finding to the site manager;
- Identify the cause of the uncontrolled release;
- Regain adequate control as soon as possible (by wetting down, covering and vacating the area);
- Make sure anyone in the work area affected who is not wearing personal protective equipment (PPE), including respiratory protective equipment (RPE), leaves the affected area immediately.
- Minimise the spread of asbestos by ensuring they are suitably decontaminated;
- Decontaminate anyone who is contaminated with dust and debris;
- Ensure rags, clothing or PPE is decontaminated or disposed of as contaminated waste;
- A competent and qualified person should undertake an appropriate risk assessment for the control and handling of the material and the location of the asbestos will be recorded.

The flowchart overleaf (taken from HSE EM1) outlines the key procedures summarised above (for guidance only).

### Personal Decontamination

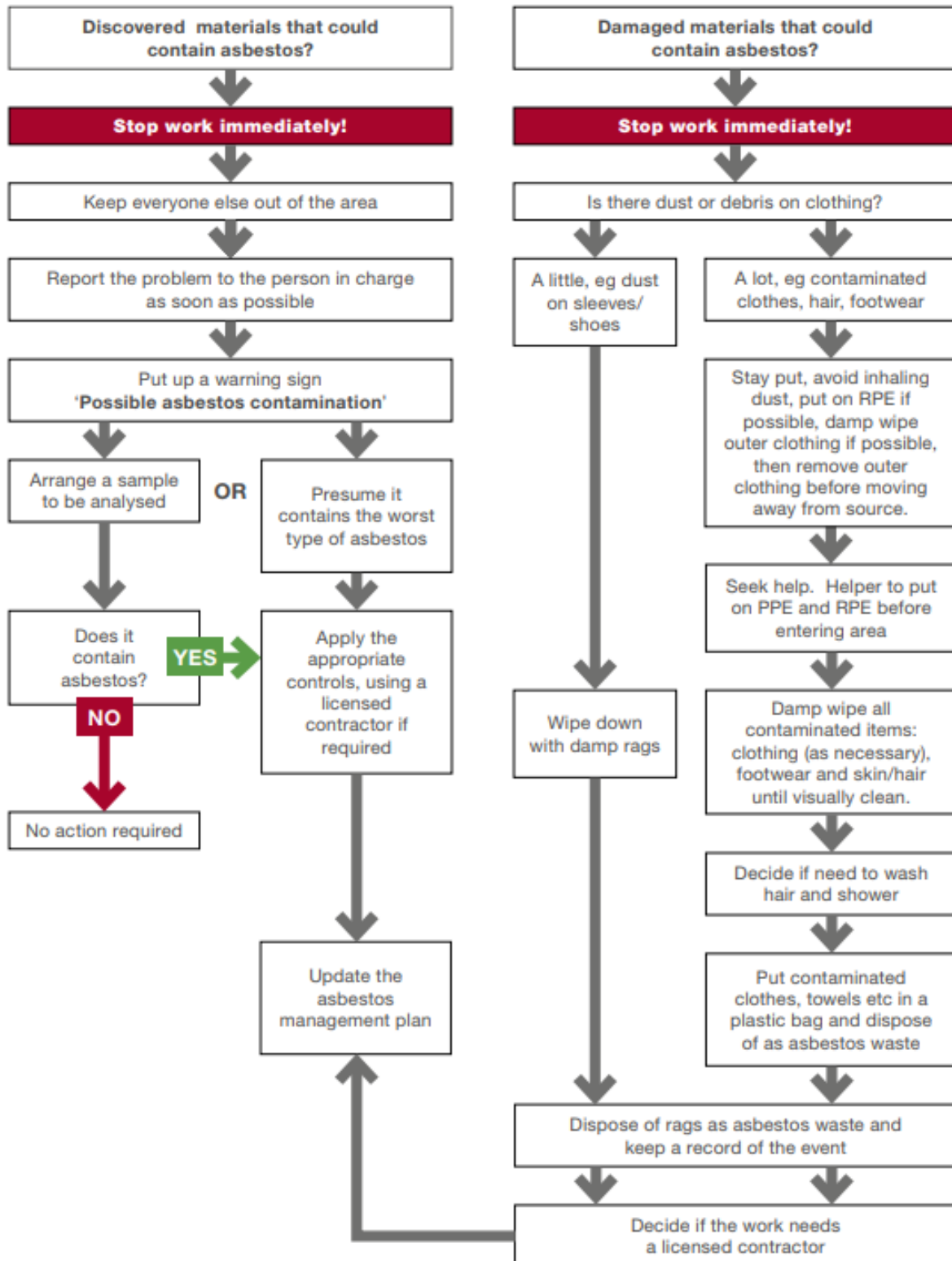
A suitable location for personal decontamination should be considered as part of the planning before the job commences. Other people should be excluded from decontamination area the during personal decontamination area.

- Clean your boots with damp rags.
- Otherwise, use damp rags in a gentle 'patting' action to clean overalls. Rubbing can disturb fibres.
- Peel off disposable overalls so they are inside when removed.
- Place in suitable asbestos waste bag.
- Finally, remove and dispose of RPE and tape the bag closed.

Use damp rags to clean the washing facilities at the end of the job. Clean the facilities daily if the job lasts more than one day. Inspect the facilities visually once the job is finished.

Further information regarding personal decontamination can be found in HSE EM8.

## Flow chart



## 7.0 RECORD KEEPING AND VERIFICATION

### Record Keeping

During the earthworks and subsequent remediation phase, the following records should be kept:

- Summary of site activities, including material movements;
- Summary of any actions undertaken or deviations from proposed methodology;
- Fibre suppressant methods employed by the contractor, if any;
- Weather and dust observations;
- Air monitoring data (if required);
- Observations on ground conditions, including any unexpected asbestos contamination;
- A summary of any sampling undertaken.

Any updates to the risk assessments undertaken and changes to the control procedures should also be recorded and approved by a qualified person.

## **APPENDIX A**

### **REGULATORY FRAMEWORK**

## REGULATORY FRAMEWORK

The regulatory framework surrounding asbestos in soil in the United Kingdom is “vague” and guidance is often outdated and of limited use for risk assessment purposes.

The Control of Asbestos Regulations 2012 applies to all work with asbestos including working with asbestos contaminated soils; however, such work is not referred to in either Asbestos: The Contractor’s Guide (for licensed work) or Asbestos Essentials (for non-licensed work).

Most asbestos guidance published by the HSE relates to occupational exposure and Health & Safety legislation and is therefore not directly applicable to asbestos in soils.

The most recent UK contaminated land guidance dealing specifically with asbestos is the ICRCL Guidance Note 64/85 “Asbestos on Contaminated Sites 1990”. Unfortunately, this guidance is of limited use, as it is particularly poor on risk assessment and much of the legislation referred to is outdated.

As stated, ICRCL Guidance Note 64/85 gives very little detail in assessing risk but does state that factors to be considered should include: amount and form of asbestos, location of site (relative to housing, schools etc), present use of the land, ease of public access and the proposed future land use. The document further states: *The Environmental Health Department of the relevant local authority should be consulted on the need for, and form of, any immediate action required in order to minimise risks to public health.*

The guidance suggests that if discrete pieces of Asbestos Containing Materials (ACMs) are present, the area should be treated as “contaminated”. If no discrete ACMs are present; test the soil for asbestos fibres with a limit of detection (LOD) of <0.001% wt.

The value of 0.001% wt as a “clearance level” is derived from research by Addison *et al*, at the Institute of Occupational Medicine in 1988. This was further developed in the HSE publication “HSE Contract Research Report No 83/96 Development and Validation of an Analytical Method to Determine the Amount of Asbestos in Soils and Loose Aggregates”.

It should be noted that these publications are not risk based and that asbestos cannot be assessed using CLEA or any other standard exposure assessment tool. These tools assume the concentration (%wt) of contaminant in soil is related to risk, this is not true for asbestos. Risk is associated with the likelihood of asbestos fibres becoming airborne from the soil and this depends on a great number of factors including the nature of the asbestos (bound or unbound), nature of the soil (cohesive or granular), moisture content of soil, weather conditions, extent of disturbance etc.

New guidance on asbestos in contaminated land is currently being developed in the United Kingdom, based on the risk assessment approaches developed in the Netherlands and the USA. The Environment Agency and Health and Safety Laboratory are collaborating to: *“develop cost-effective methods for the analysis of asbestos in soils which support the development of relevant measurable assessment criteria which can be used for site-specific risk assessment”*.

## **APPENDIX B**

### **CHEMICAL ANALYSIS RESULTS**



Daniel Shanks  
Earth Environmental & Geotechnical Ltd  
Houldsworth Mill Business Centre  
Houldsworth Street  
Reddish  
Stockport  
Cheshire  
SK5 6DA

**DETS Ltd**  
Unit 1  
Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Kent  
ME17 2JN  
t: 01622 850410

## **DETS Report No: 20-06283**

**Site Reference:** 38 Broughton Street

**Project / Job Ref:** A3434

**Order No:** A3434

**Sample Receipt Date:** 12/06/2020

**Sample Scheduled Date:** 12/06/2020

**Report Issue Number:** 1

**Reporting Date:** 24/06/2020

**Authorised by:**

Dave Ashworth  
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**



| Soil Analysis Certificate                         |                        |               |               |               |  |  |
|---------------------------------------------------|------------------------|---------------|---------------|---------------|--|--|
| <b>DETS Report No: 20-06283</b>                   | <b>Date Sampled</b>    | 10/06/20      | 10/06/20      | 10/06/20      |  |  |
| <b>Earth Environmental &amp; Geotechnical Ltd</b> | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied |  |  |
| <b>Site Reference: 38 Broughton Street</b>        | <b>TP / BH No</b>      | WS01          | WS02          | WS03          |  |  |
| <b>Project / Job Ref: A3434</b>                   | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied |  |  |
| <b>Order No: A3434</b>                            | <b>Depth (m)</b>       | 2.20          | 0.40          | 1.70          |  |  |
| <b>Reporting Date: 24/06/2020</b>                 | <b>DETS Sample No</b>  | 480911        | 480912        | 480913        |  |  |

| Determinand                           | Unit          | RL     | Accreditation |              |                                 |              |  |
|---------------------------------------|---------------|--------|---------------|--------------|---------------------------------|--------------|--|
| Asbestos Screen <sup>(S)</sup>        | N/a           | N/a    | ISO17025      | Not Detected | Detected                        | Not Detected |  |
| Sample Matrix <sup>(S)</sup>          | Material Type | N/a    | NONE          |              | bundles of<br>Chrysotile fibres |              |  |
| Asbestos Type <sup>(S)</sup>          | PLM Result    | N/a    | ISO17025      |              | Chrysotile                      |              |  |
| pH                                    | pH Units      | N/a    | MCERTS        | 7.8          | 7.9                             | 8.0          |  |
| Total Cyanide                         | mg/kg         | < 2    | NONE          | < 2          | < 2                             | < 2          |  |
| Complex Cyanide                       | mg/kg         | < 2    | NONE          | < 2          | < 2                             | < 2          |  |
| Free Cyanide                          | mg/kg         | < 2    | NONE          | < 2          | < 2                             | < 2          |  |
| Total Sulphate as SO <sub>4</sub>     | mg/kg         | < 200  | NONE          | 805          | 615                             | 926          |  |
| Total Sulphate as SO <sub>4</sub>     | %             | < 0.02 | NONE          | 0.08         | 0.06                            | 0.09         |  |
| W/S Sulphate as SO <sub>4</sub> (2:1) | mg/l          | < 10   | MCERTS        | 73           | 31                              | 55           |  |
| W/S Sulphate as SO <sub>4</sub> (2:1) | g/l           | < 0.01 | MCERTS        | 0.07         | 0.03                            | 0.05         |  |
| Sulphide                              | mg/kg         | < 5    | NONE          | < 5          | < 5                             | < 5          |  |
| Organic Matter                        | %             | < 0.1  | MCERTS        | 9.5          | 6.4                             | 8.7          |  |
| Arsenic (As)                          | mg/kg         | < 2    | MCERTS        | 38           | 34                              | 32           |  |
| Barium (Ba)                           | mg/kg         | < 2.5  | MCERTS        | 156          | 216                             | 180          |  |
| Beryllium (Be)                        | mg/kg         | < 0.5  | MCERTS        | 1.4          | 1.5                             | 2.1          |  |
| W/S Boron                             | mg/kg         | < 1    | NONE          | < 1          | < 1                             | < 1          |  |
| Cadmium (Cd)                          | mg/kg         | < 0.2  | MCERTS        | 0.6          | 0.7                             | 0.4          |  |
| Chromium (Cr)                         | mg/kg         | < 2    | MCERTS        | 18           | 18                              | 20           |  |
| Chromium (hexavalent)                 | mg/kg         | < 2    | NONE          | < 2          | < 2                             | < 2          |  |
| Copper (Cu)                           | mg/kg         | < 4    | MCERTS        | 98           | 97                              | 107          |  |
| Lead (Pb)                             | mg/kg         | < 3    | MCERTS        | 182          | 198                             | 77           |  |
| Mercury (Hg)                          | mg/kg         | < 1    | MCERTS        | < 1          | 1.6                             | < 1          |  |
| Nickel (Ni)                           | mg/kg         | < 3    | MCERTS        | 32           | 30                              | 41           |  |
| Selenium (Se)                         | mg/kg         | < 2    | MCERTS        | < 3          | < 3                             | < 3          |  |
| Vanadium (V)                          | mg/kg         | < 1    | MCERTS        | 31           | 36                              | 44           |  |
| Zinc (Zn)                             | mg/kg         | < 3    | MCERTS        | 167          | 148                             | 79           |  |
| Total Phenols (monohydric)            | mg/kg         | < 2    | NONE          | < 2          | < 2                             | < 2          |  |
| EPH (C10 - C40)                       | mg/kg         | < 6    | MCERTS        | 858          | 850                             | 58           |  |

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion  
 Subcontracted analysis (S)



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**



| Soil Analysis Certificate - Speciated PAHs |                 |               |               |               |  |  |
|--------------------------------------------|-----------------|---------------|---------------|---------------|--|--|
| DETS Report No: 20-06283                   | Date Sampled    | 10/06/20      | 10/06/20      | 10/06/20      |  |  |
| Earth Environmental & Geotechnical Ltd     | Time Sampled    | None Supplied | None Supplied | None Supplied |  |  |
| Site Reference: 38 Broughton Street        | TP / BH No      | WS01          | WS02          | WS03          |  |  |
| Project / Job Ref: A3434                   | Additional Refs | None Supplied | None Supplied | None Supplied |  |  |
| Order No: A3434                            | Depth (m)       | 2.20          | 0.40          | 1.70          |  |  |
| Reporting Date: 24/06/2020                 | DETS Sample No  | 480911        | 480912        | 480913        |  |  |

| Determinand            | Unit  | RL    | Accreditation |       |       |       |  |  |
|------------------------|-------|-------|---------------|-------|-------|-------|--|--|
| Naphthalene            | mg/kg | < 0.1 | MCERTS        | 2.14  | 1.63  | 0.56  |  |  |
| Acenaphthylene         | mg/kg | < 0.1 | MCERTS        | 0.57  | 0.91  | < 0.1 |  |  |
| Acenaphthene           | mg/kg | < 0.1 | MCERTS        | 1.86  | 2.95  | < 0.1 |  |  |
| Fluorene               | mg/kg | < 0.1 | MCERTS        | 2.44  | 4.10  | < 0.1 |  |  |
| Phenanthrene           | mg/kg | < 0.1 | MCERTS        | 23.20 | 29.40 | 0.58  |  |  |
| Anthracene             | mg/kg | < 0.1 | MCERTS        | 6.21  | 6.37  | < 0.1 |  |  |
| Fluoranthene           | mg/kg | < 0.1 | MCERTS        | 31.50 | 30.10 | 0.80  |  |  |
| Pyrene                 | mg/kg | < 0.1 | MCERTS        | 34.60 | 31.80 | 0.84  |  |  |
| Benzo(a)anthracene     | mg/kg | < 0.1 | MCERTS        | 17.50 | 12.70 | 0.52  |  |  |
| Chrysene               | mg/kg | < 0.1 | MCERTS        | 17.80 | 13.40 | 0.74  |  |  |
| Benzo(b)fluoranthene   | mg/kg | < 0.1 | MCERTS        | 22.40 | 11.80 | 0.99  |  |  |
| Benzo(k)fluoranthene   | mg/kg | < 0.1 | MCERTS        | 7.63  | 4.98  | 0.38  |  |  |
| Benzo(a)pyrene         | mg/kg | < 0.1 | MCERTS        | 17.80 | 9.99  | 0.70  |  |  |
| Indeno(1,2,3-cd)pyrene | mg/kg | < 0.1 | MCERTS        | 8.39  | 4.60  | 0.48  |  |  |
| Dibenz(a,h)anthracene  | mg/kg | < 0.1 | MCERTS        | 2.11  | 1.28  | < 0.1 |  |  |
| Benzo(ghi)perylene     | mg/kg | < 0.1 | MCERTS        | 7.49  | 4.07  | 0.48  |  |  |
| Total EPA-16 PAHs      | mg/kg | < 1.6 | MCERTS        | 204   | 170   | 7.1   |  |  |



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



# Soil Analysis Certificate - TPH CWG Banded

|                                        |                 |               |               |               |  |  |
|----------------------------------------|-----------------|---------------|---------------|---------------|--|--|
| DETS Report No: 20-06283               | Date Sampled    | 10/06/20      | 10/06/20      | 10/06/20      |  |  |
| Earth Environmental & Geotechnical Ltd | Time Sampled    | None Supplied | None Supplied | None Supplied |  |  |
| Site Reference: 38 Broughton Street    | TP / BH No      | WS01          | WS02          | WS03          |  |  |
| Project / Job Ref: A3434               | Additional Refs | None Supplied | None Supplied | None Supplied |  |  |
| Order No: A3434                        | Depth (m)       | 2.20          | 0.40          | 1.70          |  |  |
| Reporting Date: 24/06/2020             | DETS Sample No  | 480911        | 480912        | 480913        |  |  |

| Determinand          | Unit  | RL     | Accreditation |        |        |        |  |  |
|----------------------|-------|--------|---------------|--------|--------|--------|--|--|
| Aliphatic >C5 - C6   | mg/kg | < 0.01 | NONE          | < 0.01 | < 0.01 | < 0.01 |  |  |
| Aliphatic >C6 - C8   | mg/kg | < 0.05 | NONE          | < 0.05 | < 0.05 | < 0.05 |  |  |
| Aliphatic >C8 - C10  | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    |  |  |
| Aliphatic >C10 - C12 | mg/kg | < 2    | MCERTS        | < 2    | 2      | < 2    |  |  |
| Aliphatic >C12 - C16 | mg/kg | < 3    | MCERTS        | < 3    | 16     | < 3    |  |  |
| Aliphatic >C16 - C21 | mg/kg | < 3    | MCERTS        | < 3    | 10     | < 3    |  |  |
| Aliphatic >C21 - C34 | mg/kg | < 10   | MCERTS        | < 10   | < 10   | < 10   |  |  |
| Aliphatic (C5 - C34) | mg/kg | < 21   | NONE          | < 21   | 29     | < 21   |  |  |
| Aromatic >C5 - C7    | mg/kg | < 0.01 | NONE          | < 0.01 | < 0.01 | < 0.01 |  |  |
| Aromatic >C7 - C8    | mg/kg | < 0.05 | NONE          | < 0.05 | < 0.05 | < 0.05 |  |  |
| Aromatic >C8 - C10   | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    |  |  |
| Aromatic >C10 - C12  | mg/kg | < 2    | MCERTS        | 4      | 5      | < 2    |  |  |
| Aromatic >C12 - C16  | mg/kg | < 2    | MCERTS        | 23     | 44     | < 2    |  |  |
| Aromatic >C16 - C21  | mg/kg | < 3    | MCERTS        | 96     | 145    | < 3    |  |  |
| Aromatic >C21 - C35  | mg/kg | < 10   | MCERTS        | 257    | 238    | < 10   |  |  |
| Aromatic (C5 - C35)  | mg/kg | < 21   | NONE          | 379    | 432    | < 21   |  |  |
| Total >C5 - C35      | mg/kg | < 42   | NONE          | 379    | 460    | < 42   |  |  |



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



| Soil Analysis Certificate - BTEX / MTBE |                 |               |               |               |  |  |
|-----------------------------------------|-----------------|---------------|---------------|---------------|--|--|
| DETS Report No: 20-06283                | Date Sampled    | 10/06/20      | 10/06/20      | 10/06/20      |  |  |
| Earth Environmental & Geotechnical Ltd  | Time Sampled    | None Supplied | None Supplied | None Supplied |  |  |
| Site Reference: 38 Broughton Street     | TP / BH No      | WS01          | WS02          | WS03          |  |  |
| Project / Job Ref: A3434                | Additional Refs | None Supplied | None Supplied | None Supplied |  |  |
| Order No: A3434                         | Depth (m)       | 2.20          | 0.40          | 1.70          |  |  |
| Reporting Date: 24/06/2020              | DETS Sample No  | 480911        | 480912        | 480913        |  |  |

| Determinand  | Unit  | RL  | Accreditation |     |     |     |  |  |
|--------------|-------|-----|---------------|-----|-----|-----|--|--|
| Benzene      | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 |  |  |
| Toluene      | ug/kg | < 5 | MCERTS        | < 5 | < 5 | < 5 |  |  |
| Ethylbenzene | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 |  |  |
| p & m-xylene | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 |  |  |
| o-xylene     | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 |  |  |
| MTBE         | ug/kg | < 5 | MCERTS        | < 5 | < 5 | < 5 |  |  |



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



#### Soil Analysis Certificate - Sample Descriptions

|                                        |  |
|----------------------------------------|--|
| DETS Report No: 20-06283               |  |
| Earth Environmental & Geotechnical Ltd |  |
| Site Reference: 38 Broughton Street    |  |
| Project / Job Ref: A3434               |  |
| Order No: A3434                        |  |
| Reporting Date: 24/06/2020             |  |

| DETS Sample No | TP / BH No | Additional Refs | Depth (m) | Moisture Content (%) | Sample Matrix Description    |
|----------------|------------|-----------------|-----------|----------------------|------------------------------|
| 480911         | WS01       | None Supplied   | 2.20      | 30                   | Black loamy sand with stones |
| 480912         | WS02       | None Supplied   | 0.40      | 20.2                 | Black loamy sand with stones |
| 480913         | WS03       | None Supplied   | 1.70      | 27.1                 | Black loamy sand with brick  |

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample <sup>1/5</sup>

Unsuitable Sample <sup>1/5</sup>



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**



# **Soil Analysis Certificate - Methodology & Miscellaneous Information**

**DETS Report No: 20-06283**

**Earth Environmental & Geotechnical Ltd**

**Site Reference: 38 Broughton Street**

**Project / Job Ref: A3434**

**Order No: A3434**

**Reporting Date: 24/06/2020**

| Matrix | Analysed On | Determinand                                                                                                                                     | Brief Method Description                                                                                                                             | Method No |
|--------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Soil   | D           | Boron - Water Soluble                                                                                                                           | Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES                                                            | E012      |
| Soil   | AR          | BTEX                                                                                                                                            | Determination of BTEX by headspace GC-MS                                                                                                             | E001      |
| Soil   | D           | Cations                                                                                                                                         | Determination of cations in soil by aqua-regia digestion followed by ICP-OES                                                                         | E002      |
| Soil   | D           | Chloride - Water Soluble (2:1)                                                                                                                  | Determination of chloride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | AR          | Chromium - Hexavalent                                                                                                                           | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry | E016      |
| Soil   | AR          | Cyanide - Complex                                                                                                                               | Determination of complex cyanide by distillation followed by colorimetry                                                                             | E015      |
| Soil   | AR          | Cyanide - Free                                                                                                                                  | Determination of free cyanide by distillation followed by colorimetry                                                                                | E015      |
| Soil   | AR          | Cyanide - Total                                                                                                                                 | Determination of total cyanide by distillation followed by colorimetry                                                                               | E015      |
| Soil   | D           | Cyclohexane Extractable Matter (CEM)                                                                                                            | Gravimetrically determined through extraction with cyclohexane                                                                                       | E011      |
| Soil   | AR          | Diesel Range Organics (C10 - C24)                                                                                                               | Determination of hexane/acetone extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement                             | E022      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of water followed by electrometric measurement                                                  | E023      |
| Soil   | D           | Elemental Sulphur                                                                                                                               | Determination of elemental sulphur by solvent extraction followed by GC-MS                                                                           | E020      |
| Soil   | AR          | EPH (C10 - C40)                                                                                                                                 | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH Product ID                                                                                                                                  | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)                                                                                   | Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS                                        | E004      |
| Soil   | D           | Fluoride - Water Soluble                                                                                                                        | Determination of Fluoride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | FOC (Fraction Organic Carbon)                                                                                                                   | Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate                     | E010      |
| Soil   | D           | Loss on Ignition @ 450°C                                                                                                                        | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                                       | E019      |
| Soil   | D           | Magnesium - Water Soluble                                                                                                                       | Determination of water soluble magnesium by extraction with water followed by ICP-OES                                                                | E025      |
| Soil   | D           | Metals                                                                                                                                          | Determination of metals by aqua-regia digestion followed by ICP-OES                                                                                  | E002      |
| Soil   | AR          | Mineral Oil (C10 - C40)                                                                                                                         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                  | E004      |
| Soil   | AR          | Moisture Content                                                                                                                                | Moisture content; determined gravimetrically                                                                                                         | E003      |
| Soil   | D           | Nitrate - Water Soluble (2:1)                                                                                                                   | Determination of nitrate by extraction with water & analysed by ion chromatography                                                                   | E009      |
| Soil   | D           | Organic Matter                                                                                                                                  | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | PAH - Speciated (EPA 16)                                                                                                                        | Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards                | E005      |
| Soil   | AR          | PCB - 7 Congeners                                                                                                                               | Determination of PCB by extraction with acetone and hexane followed by GC-MS                                                                         | E008      |
| Soil   | D           | Petroleum Ether Extract (PEE)                                                                                                                   | Gravimetrically determined through extraction with petroleum ether                                                                                   | E011      |
| Soil   | AR          | pH                                                                                                                                              | Determination of pH by addition of water followed by electrometric measurement                                                                       | E007      |
| Soil   | AR          | Phenols - Total (monohydric)                                                                                                                    | Determination of phenols by distillation followed by colorimetry                                                                                     | E021      |
| Soil   | D           | Phosphate - Water Soluble (2:1)                                                                                                                 | Determination of phosphate by extraction with water & analysed by ion chromatography                                                                 | E009      |
| Soil   | D           | Sulphate (as SO4) - Total                                                                                                                       | Determination of total sulphate by extraction with 10% HCl followed by ICP-OES                                                                       | E013      |
| Soil   | D           | Sulphate (as SO4) - Water Soluble (2:1)                                                                                                         | Determination of sulphate by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | Sulphate (as SO4) - Water Soluble (2:1)                                                                                                         | Determination of water soluble sulphate by extraction with water followed by ICP-OES                                                                 | E014      |
| Soil   | AR          | Sulphide                                                                                                                                        | Determination of sulphide by distillation followed by colorimetry                                                                                    | E018      |
| Soil   | D           | Sulphur - Total                                                                                                                                 | Determination of total sulphur by extraction with aqua-regia followed by ICP-OES                                                                     | E024      |
| Soil   | AR          | SVOC                                                                                                                                            | Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS                                               | E006      |
| Soil   | AR          | Thiocyanate (as SCN)                                                                                                                            | Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry  | E017      |
| Soil   | D           | Toluene Extractable Matter (TEM)                                                                                                                | Gravimetrically determined through extraction with toluene                                                                                           | E011      |
| Soil   | D           | Total Organic Carbon (TOC)                                                                                                                      | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | VOCs                                                                                                                                            | Determination of volatile organic compounds by headspace GC-MS                                                                                       | E001      |
| Soil   | AR          | VPH (C6-C8 & C8-C10)                                                                                                                            | Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID                                                                            | E001      |

**D Dried**  
**AR As Received**



Daniel Shanks  
Earth Environmental & Geotechnical Ltd  
Houldsworth Mill Business Centre  
Houldsworth Street  
Reddish  
Stockport  
Cheshire  
SK5 6DA

**DETS Ltd**  
Unit 1  
Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Kent  
ME17 2JN  
t: 01622 850410

## **DETS Report No: 20-08106**

**Site Reference:** 38 Broughton Street

**Project / Job Ref:** A3434

**Order No:** A3434

**Sample Receipt Date:** 22/07/2020

**Sample Scheduled Date:** 22/07/2020

**Report Issue Number:** 1

**Reporting Date:** 28/07/2020

**Authorised by:**

Dave Ashworth  
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



| Water Analysis Certificate             |                 |               |               |  |  |
|----------------------------------------|-----------------|---------------|---------------|--|--|
| DETS Report No: 20-08106               | Date Sampled    | 17/07/20      | 17/07/20      |  |  |
| Earth Environmental & Geotechnical Ltd | Time Sampled    | None Supplied | None Supplied |  |  |
| Site Reference: 38 Broughton Street    | TP / BH No      | WS02          | WS03          |  |  |
| Project / Job Ref: A3434               | Additional Refs | None Supplied | None Supplied |  |  |
| Order No: A3434                        | Depth (m)       | None Supplied | None Supplied |  |  |
| Reporting Date: 28/07/2020             | DETS Sample No  | 488347        | 488348        |  |  |

| Determinand                 | Unit     | RL     | Accreditation |        |        |  |  |  |
|-----------------------------|----------|--------|---------------|--------|--------|--|--|--|
| pH                          | pH Units | N/a    | ISO17025      | 7.4    | 7.3    |  |  |  |
| Total Cyanide               | ug/l     | < 5    | NONE          | < 5    | < 5    |  |  |  |
| Complex Cyanide             | ug/l     | < 5    | NONE          | < 5    | < 5    |  |  |  |
| Free Cyanide                | ug/l     | < 5    | NONE          | < 5    | < 5    |  |  |  |
| Sulphate as SO <sub>4</sub> | mg/l     | < 1    | ISO17025      | 43     | 48     |  |  |  |
| Sulphide                    | mg/l     | < 0.1  | NONE          | < 0.1  | < 0.1  |  |  |  |
| Total Organic Carbon (TOC)  | mg/l     | < 0.1  | NONE          | 4.4    | 3.4    |  |  |  |
| Arsenic (dissolved)         | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Barium (dissolved)          | ug/l     | < 5    | ISO17025      | 78     | 161    |  |  |  |
| Beryllium (dissolved)       | ug/l     | < 3    | ISO17025      | < 3    | < 3    |  |  |  |
| Boron (dissolved)           | ug/l     | < 5    | ISO17025      | 79     | 106    |  |  |  |
| Cadmium (dissolved)         | ug/l     | < 0.4  | ISO17025      | < 0.4  | < 0.4  |  |  |  |
| Chromium (dissolved)        | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Chromium (hexavalent)       | ug/l     | < 20   | NONE          | < 20   | < 20   |  |  |  |
| Copper (dissolved)          | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Lead (dissolved)            | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Mercury (dissolved)         | ug/l     | < 0.05 | ISO17025      | < 0.05 | < 0.05 |  |  |  |
| Nickel (dissolved)          | ug/l     | < 5    | ISO17025      | 6      | 6      |  |  |  |
| Selenium (dissolved)        | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Vanadium (dissolved)        | ug/l     | < 5    | ISO17025      | < 5    | < 5    |  |  |  |
| Zinc (dissolved)            | ug/l     | < 2    | ISO17025      | 70     | 10     |  |  |  |
| Total Phenols (monohydric)  | ug/l     | < 10   | NONE          | < 10   | < 10   |  |  |  |
| EPH (C10 - C40)             | ug/l     | < 10   | NONE          | < 10   | < 10   |  |  |  |

Subcontracted analysis <sup>(S)</sup>

Insufficient sample <sup>US</sup>

Unsuitable Sample <sup>US</sup>



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**

**Water Analysis Certificate - Speciated PAH**

|                                                   |                        |               |               |  |  |  |
|---------------------------------------------------|------------------------|---------------|---------------|--|--|--|
| <b>DETS Report No: 20-08106</b>                   | <b>Date Sampled</b>    | 17/07/20      | 17/07/20      |  |  |  |
| <b>Earth Environmental &amp; Geotechnical Ltd</b> | <b>Time Sampled</b>    | None Supplied | None Supplied |  |  |  |
| <b>Site Reference: 38 Broughton Street</b>        | <b>TP / BH No</b>      | WS02          | WS03          |  |  |  |
| <b>Project / Job Ref: A3434</b>                   | <b>Additional Refs</b> | None Supplied | None Supplied |  |  |  |
| <b>Order No: A3434</b>                            | <b>Depth (m)</b>       | None Supplied | None Supplied |  |  |  |
| <b>Reporting Date: 28/07/2020</b>                 | <b>DETS Sample No</b>  | 488347        | 488348        |  |  |  |

| Determinand            | Unit | RL      | Accreditation |         |         |  |  |  |
|------------------------|------|---------|---------------|---------|---------|--|--|--|
| Naphthalene            | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Acenaphthylene         | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Acenaphthene           | ug/l | < 0.01  | NONE          | 0.01    | < 0.01  |  |  |  |
| Fluorene               | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Phenanthrene           | ug/l | < 0.01  | NONE          | 0.02    | < 0.01  |  |  |  |
| Anthracene             | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Fluoranthene           | ug/l | < 0.01  | NONE          | 0.03    | 0.03    |  |  |  |
| Pyrene                 | ug/l | < 0.01  | NONE          | 0.02    | 0.05    |  |  |  |
| Benzo(a)anthracene     | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Chrysene               | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Benzo(b)fluoranthene   | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Benzo(k)fluoranthene   | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Benzo(a)pyrene         | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Indeno(1,2,3-cd)pyrene | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Dibenz(a,h)anthracene  | ug/l | < 0.01  | NONE          | < 0.01  | < 0.01  |  |  |  |
| Benzo(ghi)perylene     | ug/l | < 0.008 | NONE          | < 0.008 | < 0.008 |  |  |  |
| Total EPA-16 PAHs      | ug/l | < 0.01  | NONE          | 0.08    | 0.08    |  |  |  |



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**

| Water Analysis Certificate - TPH CWG Banded       |                        |               |               |  |  |  |  |
|---------------------------------------------------|------------------------|---------------|---------------|--|--|--|--|
| <b>DETS Report No: 20-08106</b>                   | <b>Date Sampled</b>    | 17/07/20      | 17/07/20      |  |  |  |  |
| <b>Earth Environmental &amp; Geotechnical Ltd</b> | <b>Time Sampled</b>    | None Supplied | None Supplied |  |  |  |  |
| <b>Site Reference: 38 Broughton Street</b>        | <b>TP / BH No</b>      | WS02          | WS03          |  |  |  |  |
| <b>Project / Job Ref: A3434</b>                   | <b>Additional Refs</b> | None Supplied | None Supplied |  |  |  |  |
| <b>Order No: A3434</b>                            | <b>Depth (m)</b>       | None Supplied | None Supplied |  |  |  |  |
| <b>Reporting Date: 28/07/2020</b>                 | <b>DETS Sample No</b>  | 488347        | 488348        |  |  |  |  |

| Determinand          | Unit | RL    | Accreditation |       |       |  |  |
|----------------------|------|-------|---------------|-------|-------|--|--|
| Aliphatic >C5 - C6   | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C6 - C8   | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C8 - C10  | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C10 - C12 | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C12 - C16 | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C16 - C21 | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic >C21 - C34 | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aliphatic (C5 - C34) | ug/l | < 70  | NONE          | < 70  | < 70  |  |  |
| Aromatic >C5 - C7    | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C7 - C8    | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C8 - C10   | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C10 - C12  | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C12 - C16  | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C16 - C21  | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic >C21 - C35  | ug/l | < 10  | NONE          | < 10  | < 10  |  |  |
| Aromatic (C5 - C35)  | ug/l | < 70  | NONE          | < 70  | < 70  |  |  |
| Total >C5 - C35      | ug/l | < 140 | NONE          | < 140 | < 140 |  |  |



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



**Water Analysis Certificate - BTEX / MTBE**

|                                                   |                        |               |               |  |  |  |
|---------------------------------------------------|------------------------|---------------|---------------|--|--|--|
| <b>DETS Report No:</b> 20-08106                   | <b>Date Sampled</b>    | 17/07/20      | 17/07/20      |  |  |  |
| <b>Earth Environmental &amp; Geotechnical Ltd</b> | <b>Time Sampled</b>    | None Supplied | None Supplied |  |  |  |
| <b>Site Reference:</b> 38 Broughton Street        | <b>TP / BH No</b>      | WS02          | WS03          |  |  |  |
| <b>Project / Job Ref:</b> A3434                   | <b>Additional Refs</b> | None Supplied | None Supplied |  |  |  |
| <b>Order No:</b> A3434                            | <b>Depth (m)</b>       | None Supplied | None Supplied |  |  |  |
| <b>Reporting Date:</b> 28/07/2020                 | <b>DETS Sample No</b>  | 488347        | 488348        |  |  |  |

| Determinand  | Unit | RL   | Accreditation |      |      |  |  |  |
|--------------|------|------|---------------|------|------|--|--|--|
| Benzene      | ug/l | < 1  | ISO17025      | < 1  | < 1  |  |  |  |
| Toluene      | ug/l | < 5  | ISO17025      | < 5  | < 5  |  |  |  |
| Ethylbenzene | ug/l | < 5  | ISO17025      | < 5  | < 5  |  |  |  |
| p & m-xylene | ug/l | < 10 | ISO17025      | < 10 | < 10 |  |  |  |
| o-xylene     | ug/l | < 5  | ISO17025      | < 5  | < 5  |  |  |  |
| MTBE         | ug/l | < 10 | ISO17025      | < 10 | < 10 |  |  |  |



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**



| Water Analysis Certificate - Methodology & Miscellaneous Information |                     |
|----------------------------------------------------------------------|---------------------|
| DETS Report No:                                                      | 20-08106            |
| Earth Environmental & Geotechnical Ltd                               |                     |
| Site Reference:                                                      | 38 Broughton Street |
| Project / Job Ref:                                                   | A3434               |
| Order No:                                                            | A3434               |
| Reporting Date:                                                      | 28/07/2020          |

| Matrix   | Analysed On | Determinand                                                                                                                                     | Brief Method Description                                                                                                                    | Method No |
|----------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Water    | UF          | Alkalinity                                                                                                                                      | Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point                                 | E103      |
| Water    | UF          | BTEX                                                                                                                                            | Determination of BTEX by headspace GC-MS                                                                                                    | E101      |
| Water    | F           | Cations                                                                                                                                         | Determination of cations by filtration followed by ICP-MS                                                                                   | E102      |
| Water    | UF          | Chemical Oxygen Demand (COD)                                                                                                                    | Determination using a COD reactor followed by colorimetry                                                                                   | E112      |
| Water    | F           | Chloride                                                                                                                                        | Determination of chloride by filtration & analysed by ion chromatography                                                                    | E109      |
| Water    | F           | Chromium - Hexavalent                                                                                                                           | Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry                            | E116      |
| Water    | UF          | Cyanide - Complex                                                                                                                               | Determination of complex cyanide by distillation followed by colorimetry                                                                    | E115      |
| Water    | UF          | Cyanide - Free                                                                                                                                  | Determination of free cyanide by distillation followed by colorimetry                                                                       | E115      |
| Water    | UF          | Cyanide - Total                                                                                                                                 | Determination of total cyanide by distillation followed by colorimetry                                                                      | E115      |
| Water    | UF          | Cyclohexane Extractable Matter (CEM)                                                                                                            | Gravimetrically determined through liquid:liquid extraction with cyclohexane                                                                | E111      |
| Water    | F           | Diesel Range Organics (C10 - C24)                                                                                                               | Determination of liquid:liquid extraction with hexane followed by GC-FID                                                                    | E104      |
| Water    | F           | Dissolved Organic Content (DOC)                                                                                                                 | Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection                                  | E110      |
| Water    | UF          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by electrometric measurement                                                                       | E123      |
| Water    | F           | EPH (C10 - C40)                                                                                                                                 | Determination of liquid:liquid extraction with hexane followed by GC-FID                                                                    | E104      |
| Water    | F           | EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)                                                                                   | Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS                         | E104      |
| Water    | F           | Fluoride                                                                                                                                        | Determination of Fluoride by filtration & analysed by ion chromatography                                                                    | E109      |
| Water    | F           | Hardness                                                                                                                                        | Determination of Ca and Mg by ICP-MS followed by calculation                                                                                | E102      |
| Leachate | F           | Leachate Preparation - NRA                                                                                                                      | Based on National Rivers Authority leaching test 1994                                                                                       | E301      |
| Leachate | F           | Leachate Preparation - WAC                                                                                                                      | Based on BS EN 12457 Pt1, 2, 3                                                                                                              | E302      |
| Water    | F           | Metals                                                                                                                                          | Determination of metals by filtration followed by ICP-MS                                                                                    | E102      |
| Water    | F           | Mineral Oil (C10 - C40)                                                                                                                         | Determination of liquid:liquid extraction with hexane followed by GI-FID                                                                    | E104      |
| Water    | F           | Nitrate                                                                                                                                         | Determination of nitrate by filtration & analysed by ion chromatography                                                                     | E109      |
| Water    | UF          | Monohydric Phenol                                                                                                                               | Determination of phenols by distillation followed by colorimetry                                                                            | E121      |
| Water    | F           | PAH - Speciated (EPA 16)                                                                                                                        | Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS                      | E105      |
| Water    | F           | PCB - 7 Congeners                                                                                                                               | Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane                                        | E108      |
| Water    | UF          | Petroleum Ether Extract (PEE)                                                                                                                   | Gravimetrically determined through liquid:liquid extraction with petroleum ether                                                            | E111      |
| Water    | UF          | pH                                                                                                                                              | Determination of pH by electrometric measurement                                                                                            | E107      |
| Water    | F           | Phosphate                                                                                                                                       | Determination of phosphate by filtration & analysed by ion chromatography                                                                   | E109      |
| Water    | UF          | Redox Potential                                                                                                                                 | Determination of redox potential by electrometric measurement                                                                               | E113      |
| Water    | F           | Sulphate (as SO4)                                                                                                                               | Determination of sulphate by filtration & analysed by ion chromatography                                                                    | E109      |
| Water    | UF          | Sulphide                                                                                                                                        | Determination of sulphide by distillation followed by colorimetry                                                                           | E118      |
| Water    | F           | SVOC                                                                                                                                            | Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS    | E106      |
| Water    | UF          | Toluene Extractable Matter (TEM)                                                                                                                | Gravimetrically determined through liquid:liquid extraction with toluene                                                                    | E111      |
| Water    | UF          | Total Organic Carbon (TOC)                                                                                                                      | Low heat with persulphate addition followed by IR detection                                                                                 | E110      |
| Water    | F           | TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)          | Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS | E104      |
| Water    | F           | TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) | Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS | E104      |
| Water    | UF          | VOCs                                                                                                                                            | Determination of volatile organic compounds by headspace GC-MS                                                                              | E101      |
| Water    | UF          | VPH (C6-C8 & C8-C10)                                                                                                                            | Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID                                                                   | E101      |

Key

**F Filtered**  
**UF Unfiltered**



Shauna McLoughlin  
Earth Environmental & Geotechnical Ltd  
Houldsworth Mill Business Centre  
Houldsworth Street  
Reddish  
Stockport  
Cheshire  
SK5 6DA

**DETS Ltd**  
Unit 1  
Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Kent  
ME17 2JN  
t: 01622 850410

## **DETS Report No: 20-08857**

**Site Reference:** 38 Broughton Street

**Project / Job Ref:** A3434 DETS No. 20-06283

**Order No:** A3434/SMc

**Sample Receipt Date:** 07/08/2020

**Sample Scheduled Date:** 07/08/2020

**Report Issue Number:** 1

**Reporting Date:** 13/08/2020

**Authorised by:**

Kevin Old  
General Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



| Soil Analysis Certificate                  |                 |               |  |  |  |  |
|--------------------------------------------|-----------------|---------------|--|--|--|--|
| DETS Report No: 20-08857                   | Date Sampled    | 10/06/20      |  |  |  |  |
| Earth Environmental & Geotechnical Ltd     | Time Sampled    | None Supplied |  |  |  |  |
| Site Reference: 38 Broughton Street        | TP / BH No      | WS02          |  |  |  |  |
| Project / Job Ref: A3434 DETS No. 20-06283 | Additional Refs | None Supplied |  |  |  |  |
| Order No: A3434/SMc                        | Depth (m)       | 0.40          |  |  |  |  |
| Reporting Date: 13/08/2020                 | DETS Sample No  | 491469        |  |  |  |  |

| Determinand                            | Unit | RL      | Accreditation |       |  |  |  |
|----------------------------------------|------|---------|---------------|-------|--|--|--|
| Asbestos Quantification <sup>(S)</sup> | %    | < 0.001 | ISO17025      | 0.012 |  |  |  |

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion  
Subcontracted analysis (S)



**DETS Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 850410**

#### Soil Analysis Certificate - Methodology & Miscellaneous Information

**DETS Report No: 20-08857**

**Earth Environmental & Geotechnical Ltd**

**Site Reference: 38 Broughton Street**

**Project / Job Ref: A3434 DETS No. 20-06283**

**Order No: A3434/SMc**

**Reporting Date: 13/08/2020**

| Matrix | Analysed On | Determinand                                                                                                                                     | Brief Method Description                                                                                                                             | Method No |
|--------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Soil   | D           | Boron - Water Soluble                                                                                                                           | Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES                                                            | E012      |
| Soil   | AR          | BTEX                                                                                                                                            | Determination of BTEX by headspace GC-MS                                                                                                             | E001      |
| Soil   | D           | Cations                                                                                                                                         | Determination of cations in soil by aqua-regia digestion followed by ICP-OES                                                                         | E002      |
| Soil   | D           | Chloride - Water Soluble (2:1)                                                                                                                  | Determination of chloride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | AR          | Chromium - Hexavalent                                                                                                                           | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry | E016      |
| Soil   | AR          | Cyanide - Complex                                                                                                                               | Determination of complex cyanide by distillation followed by colorimetry                                                                             | E015      |
| Soil   | AR          | Cyanide - Free                                                                                                                                  | Determination of free cyanide by distillation followed by colorimetry                                                                                | E015      |
| Soil   | AR          | Cyanide - Total                                                                                                                                 | Determination of total cyanide by distillation followed by colorimetry                                                                               | E015      |
| Soil   | D           | Cyclohexane Extractable Matter (CEM)                                                                                                            | Gravimetrically determined through extraction with cyclohexane                                                                                       | E011      |
| Soil   | AR          | Diesel Range Organics (C10 - C24)                                                                                                               | Determination of hexane/acetone extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement                             | E022      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of water followed by electrometric measurement                                                  | E023      |
| Soil   | D           | Elemental Sulphur                                                                                                                               | Determination of elemental sulphur by solvent extraction followed by GC-MS                                                                           | E020      |
| Soil   | AR          | EPH (C10 - C40)                                                                                                                                 | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH Product ID                                                                                                                                  | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)                                                                                   | Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS                                        | E004      |
| Soil   | D           | Fluoride - Water Soluble                                                                                                                        | Determination of Fluoride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | FOC (Fraction Organic Carbon)                                                                                                                   | Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate                     | E010      |
| Soil   | D           | Loss on Ignition @ 450°C                                                                                                                        | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                                       | E019      |
| Soil   | D           | Magnesium - Water Soluble                                                                                                                       | Determination of water soluble magnesium by extraction with water followed by ICP-OES                                                                | E025      |
| Soil   | D           | Metals                                                                                                                                          | Determination of metals by aqua-regia digestion followed by ICP-OES                                                                                  | E002      |
| Soil   | AR          | Mineral Oil (C10 - C40)                                                                                                                         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                  | E004      |
| Soil   | AR          | Moisture Content                                                                                                                                | Moisture content; determined gravimetrically                                                                                                         | E003      |
| Soil   | D           | Nitrate - Water Soluble (2:1)                                                                                                                   | Determination of nitrate by extraction with water & analysed by ion chromatography                                                                   | E009      |
| Soil   | D           | Organic Matter                                                                                                                                  | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | PAH - Speciated (EPA 16)                                                                                                                        | Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards                | E005      |
| Soil   | AR          | PCB - 7 Congeners                                                                                                                               | Determination of PCB by extraction with acetone and hexane followed by GC-MS                                                                         | E008      |
| Soil   | D           | Petroleum Ether Extract (PEE)                                                                                                                   | Gravimetrically determined through extraction with petroleum ether                                                                                   | E011      |
| Soil   | AR          | pH                                                                                                                                              | Determination of pH by addition of water followed by electrometric measurement                                                                       | E007      |
| Soil   | AR          | Phenols - Total (monohydric)                                                                                                                    | Determination of phenols by distillation followed by colorimetry                                                                                     | E021      |
| Soil   | D           | Phosphate - Water Soluble (2:1)                                                                                                                 | Determination of phosphate by extraction with water & analysed by ion chromatography                                                                 | E009      |
| Soil   | D           | Sulphate (as SO <sub>4</sub> ) - Total                                                                                                          | Determination of total sulphate by extraction with 10% HCl followed by ICP-OES                                                                       | E013      |
| Soil   | D           | Sulphate (as SO <sub>4</sub> ) - Water Soluble (2:1)                                                                                            | Determination of sulphate by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | Sulphate (as SO <sub>4</sub> ) - Water Soluble (2:1)                                                                                            | Determination of water soluble sulphate by extraction with water followed by ICP-OES                                                                 | E014      |
| Soil   | AR          | Sulphide                                                                                                                                        | Determination of sulphide by distillation followed by colorimetry                                                                                    | E018      |
| Soil   | D           | Sulphur - Total                                                                                                                                 | Determination of total sulphur by extraction with aqua-regia followed by ICP-OES                                                                     | E024      |
| Soil   | AR          | SVOC                                                                                                                                            | Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS                                               | E006      |
| Soil   | AR          | Thiocyanate (as SCN)                                                                                                                            | Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry  | E017      |
| Soil   | D           | Toluene Extractable Matter (TEM)                                                                                                                | Gravimetrically determined through extraction with toluene                                                                                           | E011      |
| Soil   | D           | Total Organic Carbon (TOC)                                                                                                                      | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | VOCs                                                                                                                                            | Determination of volatile organic compounds by headspace GC-MS                                                                                       | E001      |
| Soil   | AR          | VPH (C6-C8 & C8-C10)                                                                                                                            | Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID                                                                            | E001      |

**D Dried**  
**AR As Received**