



0309046/CW/CK

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Dear Tim

## **EASTLEIGH – SUPPLEMENTARY GROUND INVESTIGATION**

### **1.0 INTRODUCTION**

Colliers PBC (Colliers) has been commissioned by Athora UK RE Log Property 24 Limited, to undertake an intrusive investigation on the newly redeveloped units at Unit 1 – 5 Woodside Road, Eastleigh, SO50 4DP. The works were completed to support the discharge of conditions 4-7 under Planning Application Reference: F/21/91183. These works were undertaken in connection with the previous works undertaken at the site and the requirements listed by the Local Authority for investigation within areas previously inaccessible at the time of investigation focused around identified potential sources. It is understood that the site, once development is completed, is to be leased by tenants for commercial use as newly developed units.

### **2.0 BACKGROUND**

Colliers has previously conducted a combined Phase 1 and initial Phase 2 environmental risk assessment, which comprised intrusive investigation and reporting for the site and subsequent remediation strategy as follows:

- Paragon (2021) – Combined Phase 1 and Phase 2 Environmental Risk Assessment and Ground Investigation Report. Dated 03 June 2021. Report Reference: 21.0084/CB/ED.
- Paragon (2022) - Remediation Strategy. Dated 25 May 2022. Report Reference 22.0041/CB/NW.

The reports concluded that no significant levels of contamination were identified within soil and groundwater. Therefore, no significant remediation was considered to be required. However, due to the presence of Made Ground and Above Ground Storage Tanks (ASTs) onsite, the removal of the ASTs and placement of imported topsoil was recommended. Additionally, it was considered that there was the potential for contamination to exist beneath the tanks. However, this could not be investigated at the time of the initial work and was planned to be addressed as part of the future construction works.



The proposed remediation strategy included the following measures:

- Enabling works and demolition of existing structures;
- Emptying, degassing and removal of all ASTs and associated pipework;
- Removal of sub-surface structures, redundant services and obstructions and preparation of the formation level;
- Construction of the new buildings with Gas Protection Measures;
- Completion of a discovery strategy throughout the construction works;
- Installation of clean cover (subsoil and topsoil) across specific regions of the site;
- Validation of clean cover including final topsoil capping;
- Preparation of Validation Report.

The reporting was submitted in order to discharge planning conditions 4 – 7 as stated below in Plate 1.

**Plate 1: Summary of Planning Conditions Pertinent to Contaminated Land and Remediation**

***Planning Conditions***

*The proposed development was granted by the Local Authority on 4 February 2022 under Planning Application Reference: F/21/91183. A number of planning conditions were stipulated in the decision notice, including the following, which are relevant to this report:*

**Condition 4:** *Prior to the removal of the fuel tanks on the site, a method statement setting out how the tanks will be removed from the site and how the land beneath the tanks will be investigated for contaminants shall be submitted to and approved in writing by the Local Planning Authority. The removal of the fuel tanks and site investigation works in this area shall be then undertaken in accordance with the approved details and a report documenting the ground conditions and results of the site investigation shall then be submitted to and approved in writing by the Local Planning Authority prior to any further development works (excluding demolition works) being undertaken on site.*

*Reason: To ensure that the development does not contribute to or is not put at unacceptable risk from contamination.*

**Condition 5:** *No work shall commence on site (other than demolition, excluding the removal of the fuel tanks unless otherwise approved by Condition 4) until a detailed site-specific scheme for remedial works and measures to be undertaken to avoid the risk from contaminants and/or gases when the site is developed and proposals for future maintenance and monitoring, has been submitted to and approved in writing by the Local Planning Authority. Such a scheme shall include nomination of a competent person to oversee the implementation of the works.*

*Reason: To ensure that the development does not contribute to or is not put at unacceptable risk from contamination.*



**Condition 6:** *The development hereby permitted shall not be occupied/brought into use until there has been submitted to the Local Planning Authority (LPA) verification by the competent person approved under the provisions of condition 5 that any remediation scheme required and approved under the provisions of condition 5 has been implemented fully in accordance with the approved details (unless varied with the written permission of the LPA in advance of implementation).*

*Unless agreed in writing with the LPA such verification shall comply with UK Land contamination risk management (LCRM) and the guidance contained in EA Guidance for the Safe Development of Housing on Land Affected by Contamination - R&D Publication 66: 2008. Typically, such a report would comprise:*

- a. A description of the site and its background, and summary of relevant site information;*
- b. A description of the remediation objectives and remedial works carried out;*
- c. Verification data, including - data (sample locations/analytical results, as built drawings of the implemented scheme, photographs of the remediation works in progress, etc., and*
- d. Certificates demonstrating that imported and / or material left in situ is free from contamination, gas / vapour membranes have been installed correctly.*

*Thereafter the scheme shall be monitored and maintained in accordance with the scheme approved under condition 5.*

*Reason: To ensure that the site does not pose any further risk to human health by demonstrating that the requirements of the approved verification plan have been met and that remediation of the site is complete.*

**Condition 7:** *In the event that any evidence of potential contamination is found at any time when carrying out the approved development that was not previously identified in the approved Phase 2 report, it must be reported in writing immediately to the Local Planning Authority. An investigation and risk assessment must then be undertaken in accordance with a methodology previously approved by the Local Planning Authority. Following completion of the measures identified in the approved remediation scheme, a verification report must be prepared, which is subject to the approval in writing of the Local Planning Authority in accordance with the immediately above condition.*

*Reason: To ensure that the development is not put at unacceptable risk from, or adversely affected by, unacceptable levels of pollution from previously unidentified contamination sources.*

## Council Review of Condition Discharge

Email correspondence from the Council to Colliers on 11<sup>th</sup> August 2023 considered that there were data gaps present from Colliers initial reports, due to the following:

- Limitations during the original ground investigation works (2021) caused by access constraints.
- The Council also noted that Colliers were not present during the enabling works and removal of the ASTs, due to the progression of the works proceeding without notifying the team. As such, Colliers and the Council were not provided with the data as set out in the remediation strategy.



The below comments (1-5) summarises council feedback within a chain of emails, provided in full within Appendix 5.

**Comment 1 – Groundwater Risk**

*“Regards comments on adequacy of testing, we would refer to the comments in the report acknowledging limited access etc. Sampling locations do not appear to be located near to the former tanks on site. The report advises that no plans of underground pipe runs were available at the time of the investigation. Reference is made to groundwater risk; however, we do not appear to know the groundwater flow direction. Hydrocarbon odour and oily sheen in one of the ground water wells is reported during monitoring.”*

**Comment 2 – Asbestos Risk**

*“Asbestos, it is not clear what the basis is for saying that this was not considered widespread? The location where this was encountered was in made ground under a large building footprint which was otherwise inaccessible at the time. What information other than the statement from Marbank is there that no such materials were present?”*

**Comment 3 – Ground Gas Protection Measures**

*“Regarding ground gas protection measures, again this was raised previously. Reviewing the proposed measures in the RMS, we note that all buildings are to be treated as Type D, in terms of protection measures however we note that Unit 5 has offices on the ground floor meaning these should be treated as Type B or C, with commensurately enhanced ground gas mitigation measures. Similarly, no reference is made to the use of pressure relief pathways.”*

**Comment 4 – Radon**

*“In addition, have the risk from radon gas been considered? The site sits within an area within 3-5% above the action level and current guidance indicate that basic radon protection is required.”*

**Comment 5 – No Discharge of Condition**

*“Consequently, we are unable to support the application for discharge of conditions. We would request that the points we have raised previously and reiterated above, and the comments about ground gas mitigation are addressed.”*

### 3.0 SCOPE OF WORKS

In response to the above commentary the following scope was developed by Colliers to address these concerns and discussed with the council (full correspondence is provided within Appendix 5).

It should be noted that the restriction of borehole locations was anticipated due to the site being an active construction site. Nevertheless, all locations were generally achieved in proximity to the original target as outlined within the scope.



## Scope of Works

The investigation scope for the works completed in September 2023:

- Five boreholes targeting the former tanks/filling points in areas previously inaccessible, in order to identify potential contaminants in proximity to potential sources;
- Six boreholes around the perimeter of the site, in order to identify potential contaminants in migrating across the site boundary to off site receptors;
- Installation of all 11 drilled boreholes to facilitate ground gas and ground water monitoring, in order to allow groundwater monitoring in locations in proximity to the former tanks on site;
- Ground gas monitoring on 6 occasions, in order to support the existing ground gas risk present, to further classify the ground gas regime, and to remove the requirement for increasing ground gas mitigation measures in Unit 5;
- Groundwater sampling on one occasion in order to update the existing risk assessment to controlled waters, and confirm groundwater direction with additional boreholes, in order to allow groundwater monitoring in locations in proximity to the former tanks on site; and,
- Soils testing at a number of locations in areas of soft landscaping, in order to update asbestos risk to site users and verify implemented remediation measures.

Additionally, further delineation work was completed in February 2024, which comprised the following:

- 4 hybrid rotary/windowless boreholes delineating the identified elevated concentrations of hydrocarbon in groundwater, in order to further identify potential contaminants and possible area of treatment if required;
- Installation of all newly drilled boreholes and sampling of new and existing boreholes, within the impacted area, utilising low flow techniques. This was to provide more representative ground water monitoring results;
- Groundwater sampling on one occasion in order to update the existing risk assessment to controlled waters, and confirm groundwater direction with additional boreholes, in order to allow groundwater monitoring in locations in proximity to the former tanks on site; and,
- Soil and groundwater testing at a number of locations within newly drilled boreholes, and use of Photo Ionisation Detector (PID) for onsite screening of soil samples.

## 4.0 AIMS AND OBJECTIVES

Based on the above, the aims of this report were to:

- Support the discharge of the planning conditions 4-7 of the site for F/21/91183 by addressing the Local Authorities concerns raised in the email correspondence provided in Appendix 5; and,
- Update risk assessments for human health, from ground gas and contamination within soils and groundwater, to update risk following additional work.

This was to be completed by (as requested by the council):

- Determine the groundwater direction;
- Demonstrate any elevated concentrations of contaminants in soils in proximity to the former tanks;
- Determine any migrating wider contamination across the site within perimeter wells; and,
- Determine ground gas requirements by undertaking a further 6 rounds of ground gas monitoring.



## 5.0 FIELDWORK

Colliers completed the intrusive fieldwork between the 12 – 18 September 2023 and 12 – 13 February 2024 to assess the potential concerns identified by the Local Authority in respect to the conceptual site model.

The ground investigation comprised the following:

- Service avoidance and topographic survey of exploratory holes to OS Grid;
- Supervision of all works by a Colliers Environmental Engineer and logging of all intrusive locations in general accordance with BS 5930:2015+A1:2020 Code of Practice for Ground Investigations;
- Drilling of 11 window sampler (WS101-111) boreholes to a maximum depth of 4.00 m bgl;
- Six rounds of groundwater level and ground gas monitoring were undertaken; and,
- One round of groundwater sampling using bailers.

And subsequently:

- Service avoidance and topographic survey of exploratory holes to OS Grid;
- Supervision of all works by a Colliers Environmental Engineer and logging of all intrusive locations in general accordance with BS 5930:2015+A1:2020 Code of Practice for Ground Investigations;
- Drilling of 4 hybrid rotary (BH201 – 204) boreholes to a maximum depth of 5.50 m bgl; and
- One round of groundwater sampling using bailers.

An exploratory hole location plan is shown in Figure 1. All figures are provided in Appendix 1. Collier's borehole logs are provided as Appendix 2.

Following the sampling, the soil samples were submitted to i2 Laboratories (an UKAS and MCERTS accredited facility) for chemical analysis. The soils testing suite included following:

- pH and Total Organic Carbon (TOC);
- Heavy Metals;
- Polyaromatic Hydrocarbons (PAH);
- BTEX (Benzene, Toluene, Ethylbenzene, MTBE);
- Total Petroleum Hydrocarbons (TPH CWG);
- Volatile Organic Compounds (VOCs);
- Semi-organic Volatile Organic Compounds (SVOCs); and
- Asbestos.

Water samples were also submitted to i2 Laboratories (an UKAS and MCERTS accredited facility) for chemical analysis. The water testing suite included following:

- pH and sulphate as  $\text{SO}_4$ ;
- Heavy Metals;
- Polyaromatic Hydrocarbons (PAH);
- BTEX (Benzene, Toluene, Ethylbenzene, MTBE);
- SVOCs and VOCs;
- Total Petroleum Hydrocarbons (TPH CWG);
- Dissolved methane;
- Dissolved  $\text{CO}_2$
- Dissolved organic carbon, and;
- Nitrate as N and Iron species.



Soils and water samples collected for laboratory analysis were placed in containers appropriate to the required testing suite, stored in accordance with quality procedures in order to maintain sample integrity. The results of the soil and water chemical testing are included in Appendix 3.

Six rounds of groundwater level and ground gas monitoring were undertaken on newly installed wells between the 22 September 2023 and 23 October 2023. This included well development and two rounds of ground gas monitoring on the 19<sup>th</sup> and 26<sup>th</sup> February.

Measurements of the depth to groundwater within the monitoring wells were taken using an electronic dip meter. To characterise the ground gas regime at the site and infrared gas meter was used to measure gas flow, concentrations of carbon dioxide, methane, and oxygen in percentage by volume.

Over the six rounds of monitoring two of six rounds were conducted during periods of falling atmospheric pressure.

All monitoring results are included within Appendix 4.

A summary of the rationale for each location in accordance with the local authority comments is provided in Table 1.

**Table 1 – Rationale**

| Location                             | Rationale                                                                                                                               | Key Contaminants of Concern                              |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| WS101, WS102, WS103, WS104 and WS111 | Updating investigation of former tank area given previous access constraints.                                                           | Petroleum hydrocarbons, PAHs, Heavy Metals and Asbestos. |
| WS105 – WS110                        | Investigation of site perimeter and update of controlled waters assessment in respect to any migrating concentrations of contamination. | Petroleum hydrocarbons, PAHs, Heavy Metals and Asbestos. |
| BH201-BH204                          | Delineating boreholes identified elevated concentrations of contamination.                                                              | Petroleum hydrocarbons, PAHs, Heavy Metals and Asbestos. |



## 6.0 GROUND CONDITIONS

A summary of the observed ground conditions at the site is provided below in Table 2.

**Table 2: Ground Summary**

| Strata                 | Typical Strata Description                                                                                                          | Depth Range of Strata Top (m) | Depth Range of Strata Base (m) | Thickness Range (m) | Comments                                                         |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------|---------------------|------------------------------------------------------------------|
| Topsoil                | Dark brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded flint.                                   | 0.00                          | 0.50                           | 0.30 - 0.50         | Occasional rootlets and organic material.                        |
| Made Ground            | Brown slightly clayey slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular fine to coarse clinker, brick and flint. | 0.00 - 0.30                   | 0.70 - 1.70                    | 0.40 – 1.70         | No significant contaminative or deleterious material identified. |
| River Terrace Deposits | Loose light brown slightly gravelly slightly clayey SAND. Sand is fine to medium. Gravel is subangular coarse flint.                | 0.30 – 1.70                   | 3.20 – 4.00                    | 1.00 - 3.60         | No visual or olfactory evidence of contamination identified.     |
| Wittering Formation    | Very soft grey slightly silty CLAY.                                                                                                 | 3.20 - 3.80                   | 4.00                           | 0.20 - 0.80         | No visual or olfactory evidence of contamination identified.     |

No significant contamination was identified during drilling. No evidence for free product was observed during the investigation. No significant odours were observed during drilling. No bulk Asbestos Containing Material (ACM) was encountered during drilling.

Clinker, brick and concrete were observed in the Made Ground in several of the window sample locations. There was no significant degradable fraction observed within the Made Ground.



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## Groundwater

Groundwater was identified during drilling in the boreholes summarised below.

**Table 3: Groundwater Strikes During Drilling**

| <b>Borehole Name</b>                                                                                                                                                                                 | <b>Groundwater Strike mbgl (mAOD)</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| WS101                                                                                                                                                                                                | 1.3 (14.88)                           |
| WS102                                                                                                                                                                                                | 2.7 (12.95)                           |
| WS103                                                                                                                                                                                                | 3.6 (13.11)                           |
| WS104                                                                                                                                                                                                | N/A                                   |
| WS105                                                                                                                                                                                                | 3.4 (13.04)                           |
| WS106                                                                                                                                                                                                | 2.6 (13.54)                           |
| WS107                                                                                                                                                                                                | 2.6 (13.40)                           |
| WS108                                                                                                                                                                                                | 2.8* (13.19)                          |
| WS109                                                                                                                                                                                                | 2.9* (13.31)                          |
| WS110                                                                                                                                                                                                | 2.7 (13.10)                           |
| WS111                                                                                                                                                                                                | 2.4 (13.34)                           |
| * Elevation (mAOD) is shown where surveying borehole levels was possible. Limitations of recorded data include the presence of buildings and trees, reducing signal in the location of the borehole. |                                       |

All drilled wells were installed with 50 mm HDPE pipe. It is noted that in some locations, due to the dense granular River Terrace Deposits, difficulties were noted in advancing drilling casing on occasion, where some locations collapsed on installation. All efforts were made to re-drill the location where this problem was observed.

It should be noted that in comparison to previous works, the site levels have been built up over the redevelopment of the site.

Six rounds of groundwater level and ground gas monitoring were undertaken on newly installed wells between 22 September 2023 and 23 October 2023. Monitoring data and observations are provided in Appendix 4 and summarised in the table below.



**Table 4: Groundwater Level During Monitoring**

| Location     | Response Zones |                 | Water Level During Monitoring |               | LNAPL             | Rounds of Monitoring Complete |
|--------------|----------------|-----------------|-------------------------------|---------------|-------------------|-------------------------------|
|              | m bgl          | m AOD           | m bgl                         | m AOD         |                   |                               |
| <b>WS101</b> | 2 - 3.4        | 12.71 - 14.11   | 2.02 – 2.69                   | 13.55 - 14.09 | N                 | 6/6                           |
| <b>WS102</b> | 1 - 2.2        | 13.558 - 14.758 | 2.12                          | 13.64         | N                 | 4/6                           |
| <b>WS103</b> | 1.7 - 3.7      | 12.053 - 14.053 | 2.11 - 2.51                   | 13.24 – 13.64 | N                 | 6/6                           |
| <b>WS104</b> | 1 - 2.8        | N/A             | N/A                           | N/A           | N                 | 5/6                           |
| <b>WS105</b> | 1.5 - 3        | 13.362 - 14.862 | 2.05 – 2.45                   | 13.91 - 14.31 | N                 | 6/6                           |
| <b>WS106</b> | 1 - 3.5        | 12.489 - 14.989 | 2.15 – 2.47                   | 13.52 – 13.84 | Oil sheen present | 5/6                           |
| <b>WS107</b> | 1 - 3          | 12.9 - 14.9     | 2.12 – 2.48                   | 13.42 – 13.78 | N                 | 5/6                           |
| <b>WS108</b> | 1.8 - 2.8      | 13.191 - 14.191 | 2.44 – 2.60                   | 13.39 – 13.55 | N                 | 5/6                           |
| <b>WS109</b> | 1.6 - 2.6      | 13.316 - 14.316 | 2.46 – 2.58                   | 13.34 – 13.46 | N                 | 5/6                           |
| <b>WS110</b> | 1 - 2.5        | 13.197 - 14.697 | 2.09 – 2.22                   | 13.48 – 13.61 | Oil sheen present | 5/6                           |
| <b>WS111</b> | 1.2 - 2.2      | 13.54 - 14.54   | 2.06 – 2.09                   | 13.65 – 13.68 | N                 | 5/6                           |

During the monitoring of locations restricted access to WS102 occurred due to the damage of surface installation. Additionally, restricted access to the west of the site caused WS106 – WS111 to not be monitored on one occasion.

Water samples were taken via bailers on 16 and 23 October.

## 7.0 ANALYTICAL TEST RESULTS

### Soils

The results of the laboratory testing for Made Ground and Natural Ground have been compared to the Generic Assessment Criteria (GAC) which is based on the C4SL and S4UL using a commercial setting as the end use of the site. The results identified that there were no exceedances of the GAC for the contaminants tested, for a commercial land use.



## Waters

The results of the laboratory testing for groundwater have been compared to both the Drinking Water Quality Standards and the Environmental Quality Standards. Slightly elevated concentrations of TPH have been identified within a single borehole (WS110) and are summarised below, along with a single marginally elevated Copper concentration.

**Table 5: Elevated Groundwater Concentrations**

| Contaminant                    | Limit of Detection (µg/l) | Result Range (µg/l) | GAC (µg/l)     | Number of Samples | Number of Exceedances | Exceedance Details   |
|--------------------------------|---------------------------|---------------------|----------------|-------------------|-----------------------|----------------------|
| Copper                         | 0.5                       | 0.8 – 1.7           | 1.0 (WFD 2015) | 4                 | 1                     | WS107 at 1.7 µg/l    |
| TPH-CWG - Aliphatic >C10 - C12 | 10                        | <10 - 1700          | 300 (WHO 2008) | 4                 | 1                     | WS110 at 1,700 µg/l  |
| TPH-CWG - Aliphatic >C12 - C16 | 10                        | <10 – 9900          | 300 (WHO 2008) | 4                 | 1                     | WS110 at 9,900 µg/l  |
| TPH-CWG - Aliphatic >C16 - C35 | 10                        | <10 – 11000         | 300 (WHO 2008) | 4                 | 1                     | WS110 at 11,000 µg/l |
| TPH-CWG - Aliphatic >C21 - C35 | 10                        | <10 – 5100          | N/a            | 4                 | N/a                   | WS110 at 5,100 µg/l  |
| TPH-CWG - Aromatic >C10 - C12  | 10                        | <10 – 780           | 10             | 4                 | 1                     | WS110 at 780 µg/l    |
| TPH-CWG - Aromatic >C12 - C16  | 10                        | <10 – 5900          | 10             | 4                 | 1                     | WS110 at 5,900 µg/l  |
| TPH-CWG - Aromatic >C16 - C21  | 10                        | <10 – 4600          | 10             | 4                 | 1                     | WS110 at 4,600 µg/l  |
| TPH-CWG - Aromatic >C21 - C35  | 10                        | <10 - 580           | 10             | 4                 | 1                     | WS110 at 580 µg/l    |

The site is underlain by a Secondary (A) Aquifer with no known groundwater abstractions in the vicinity and the site is not within any groundwater protection zone. Therefore, the groundwater at the site is not considered to be highly sensitive.

It is considered that the identified petroleum contamination is localised, where no further exceedances were identified across the site. It is considered that the elevated copper concentration is not significant and is localised in nature, as such the risk to controlled waters from identified heavy metals is not considered to be significant.



## Vapour Assessment

No sources of volatile vapours have been identified within the generic quantitative risk assessment against the SOBRA Vapour GAC for Commercial properties.

## Ground Gas Risk Assessment

Pollutant linkages associated with risks from ground gas and vapour to the property and to human health have been assessed using BS 8485:2015+A1:2019 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.*'

The Characteristic Situation ranges are between 1 and 6 and determine the gas risk to the property and the level of protection required. The process calculates a Gas Screening Value (GSV) based on gas monitoring which was undertaken based on boreholes within the Made Ground and natural geology.

The GSV for the site has been calculated based on the maximum concentration of methane or carbon dioxide monitored and the maximum flow rate recorded in the boreholes using the equation:

$$GSV = q \left( \frac{Chg}{100} \right)$$

Where:

- Chg = Concentration of a specific hazardous gas expressed as a percentage of total gas volume (%v/v)
- q = Total gas flow from a borehole in litres per hour (l/hr)
- Qhg = Calculated flow rate of a specific hazardous gas from a borehole reading

The results are then compared to tables set out in the guidance for assessment.

Six gas monitoring visits were undertaken between the 22 September 2023 and 23 October 2023. A summary of the results from the gas monitoring have been presented in Table 6. The gas monitoring records are presented in Appendix 4.

**Table 6: Ground Gas Monitoring Summary and GSV**

| Location                                                                                                  | Max Steady Methane (% v/v) | Max Steady Carbon Dioxide (%v/v) | Max Steady Flow Rate (l/hr) | GSV/Characteristic Situation |    |                |    |
|-----------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------|-----------------------------|------------------------------|----|----------------|----|
|                                                                                                           |                            |                                  |                             | Methane                      |    | Carbon Dioxide |    |
|                                                                                                           |                            |                                  |                             | GSV                          | CS | GSV            | CS |
| WS101                                                                                                     | <0.1                       | 3.1                              | <0.1                        | 0.0001                       | 1  | 0.0031         | 1  |
| WS102                                                                                                     | <0.1                       | 5.2+                             | 0.1                         | 0.0001                       | 1  | 0.0052         | 1+ |
| WS103                                                                                                     | <0.1                       | 4.8                              | 0.2                         | 0.0002                       | 1  | 0.0096         | 1  |
| WS104                                                                                                     | <0.1                       | 3.8                              | 0.1                         | 0.0001                       | 1  | 0.0038         | 1  |
| WS105                                                                                                     | <0.1                       | 14.9+                            | 0.1                         | 0.0001                       | 1  | 0.0149         | 1+ |
| WS106                                                                                                     | <0.1                       | 1.6                              | 0.1                         | 0.0001                       | 1  | 0.0016         | 1  |
| WS107                                                                                                     | <0.1                       | 0.8                              | 0.1                         | 0.0001                       | 1  | 0.0008         | 1  |
| WS108                                                                                                     | <0.1                       | 0.9                              | 0.1                         | 0.0001                       | 1  | 0.0009         | 1  |
| WS109                                                                                                     | <0.1                       | 0.9                              | 0.1                         | 0.0001                       | 1  | 0.0009         | 1  |
| WS110                                                                                                     | <0.1                       | 1.3                              | 0.2                         | 0.0002                       | 1  | 0.0026         | 1  |
| WS111                                                                                                     | <0.1                       | 3.7                              | <0.1                        | 0.0001                       | 1  | 0.0037         | 1  |
| + : Consideration should be given to elevate CS due to a %v/v over 1%v/v methane or 5%v/v carbon dioxide. |                            |                                  |                             |                              |    |                |    |



Although elevated concentrations above 1%v/v methane or 5%v/v carbon dioxide has been recorded, these elevated concentrations were inconsistent, did not occur specifically within periods of falling atmospheric pressure and no significant flows have been recorded.

Additionally, within the encountered ground conditions within locations WS102 and WS105 no significant degradable/gassing material was identified. Furthermore, in the surrounding area it is considered that no significant source of ground gas is present in close proximity to the site.

Furthermore, the elevated concentrations of carbon dioxide within WS102 are considered to be marginal, and location WS105 is located the furthest position possible from Unit 5. Unit 5 is noted within the council's comments to be the only outstanding residual concern, with respect to ground gas risk given the use of the Unit and the ground gas measures implemented.

As such, in line with BS8485:2015 +A1:2019 guidance a characteristic situation 1 has been determined given the above recorded conditions, where it is considered that no ground gas protection measures are required.

However, it is noted that basic radon measures are required, where the installed ground gas protection membrane across all units provides sufficient protection from the identified radon gas. An inclusion of the Gas Membrane Records and email confirmation of its suitability for protection against radon is provided within Appendix 6.

## **8.0 DISCUSSION**

### **Human Health Risk Assessment**

The earlier reports completed by Paragon (now Colliers) in 2021 and 2022 concluded that no significant contamination was present on the site in terms of risks to human health. However, due to the presence of ASTs and asbestos in Made Ground, it was recommended that these were removed and replaced with clean imported soils.

Further investigation work undertaken by Colliers in September 2023 did not identify any significant risks to human health. Therefore, risks to human health at the site are considered to be low in the context of the proposed commercial / industrial use of the site.

### **Ground Gas**

The earlier reports completed by Paragon (now Colliers) in 2021 and 2022 concluded that no significant risks from ground gases exist at the site.

Further investigation and monitoring work was undertaken by Colliers between September 2023 and February 2024. Assessment in line with BS8485:2015+A1:2019 guidance indicates that the site falls within Characteristic Situation 1, where it is considered that no ground gas protection measures are required. Nevertheless, a Gas Membrane was included as part of the construction of the buildings and email confirmation of its suitability for protection against radon is provided within Appendix 6. As such, the risks from both ground gases and radon are considered to be low.



### **Controlled Waters**

The earlier reports completed by Paragon (now Colliers) in 2021 and 2022 concluded that no significant contamination was present on the site in terms of risks to controlled waters. However, some isolated hydrocarbon contamination was identified in groundwater.

Further investigation and monitoring work was undertaken by Colliers between September 2023 and February 2024. This identified slightly elevated hydrocarbons in WS110 and very slightly elevated copper concentrations in WS107. No elevated contaminants were identified in groundwater elsewhere on the site. Given the environmental setting of the site, underlain by a Secondary A aquifer, outside any source protection zone and with no known groundwater abstractions in the vicinity, the slightly elevated and isolated copper and hydrocarbons are not considered to pose any significant risk to controlled waters. As such, there is no source-pathway-receptor linkage at the site.

### **Council Comments**

The following section presents the findings of our assessment in line with the council's concerns.

#### ***Comment 1 – Groundwater***

At this stage, the groundwater assessment has indicated elevated concentrations of petroleum hydrocarbons in one location within the east of the site. This is generally considered to be localised in proximity to the former tanks (two diesel and one ad blue refuelling pump) in the east of the site. It is noted that boreholes in immediate proximity to the tanks did not record visual, olfactory or elevated concentrations within soils or groundwater.

As such, it is considered that although slightly elevated TPH concentrations were identified in WS110 and copper concentrations in WS107, the isolated nature of the findings is not considered to pose any significant risk to Human Health or Controlled Waters. Therefore, this information is deemed suitable to satisfy the council's concerns.

#### ***Comment 2 - Asbestos***

No asbestos was identified during the additional works. Furthermore, it is considered that given the covering of the site with buildings and hardstanding no human health source-pathway-receptor is present.

Additionally, suitable capping in areas of soft landscaping with validated material was observed across the site and tested in a number of locations. This information is considered suitable to satisfy the council's concerns.

#### ***Comment 3 – Ground Gas Protection Measures***

Given the lack of hazardous ground gas risk identified it is considered that no ground gas protection measures are required. As such, the updated ground gas risk assessment undertaken within the works completed to date are considered suitable to satisfy the council's concerns around Unit 5.

#### ***Comment 4 – Radon***

Additionally, basic radon measure requirements have been suitably installed across all units, providing sufficient protection. Records and email confirmation of its suitability for protection against radon is provided within Appendix 6.



## 9.0 CONCLUSION

Additional delineation investigations, gas monitoring and groundwater monitoring were undertaken by Colliers between September 2023 and February 2024 at the Woodside Road, Eastleigh site. The scope of works undertaken was designed specifically to address concerns raised by Eastleigh Borough Council regarding earlier phases of investigation and assessment undertaken in relation to the site.

We believe that Colliers have adequately addressed all of the council's concerns. We recommend that an application is now made for all contaminated land related planning conditions to be discharged.

Yours Sincerely



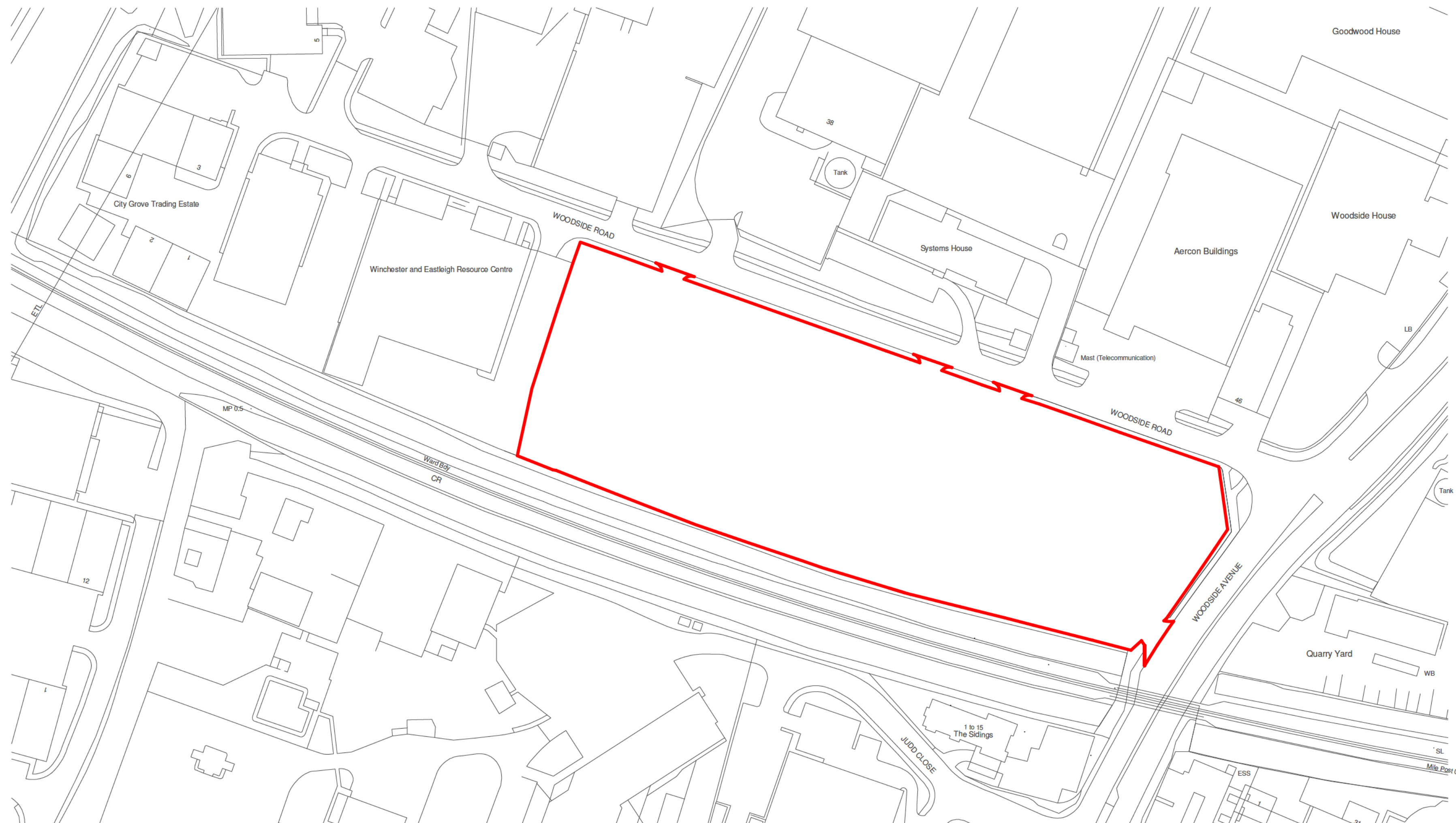
Director  
Colliers  
M: 07730 096894  
E: Charles.Bruinvels@colliers.com

Encs:

Appendix 1 – Figures  
Appendix 2 – Borehole Logs  
Appendix 3 – Chemical Laboratory Analysis  
Appendix 4 – Ground Gas and Groundwater Monitoring  
Appendix 5 – Extent of Survey and Limitations



## APPENDIX 1: FIGURES



## Location Plan

1 : 1000



Planning application boundary -  
**1.61Ha / 3.98 Acres**



|                                   |                 |
|-----------------------------------|-----------------|
| P2: Amended redline up to highway | 19.05.2021. JCL |
| P1: First Issue                   | 27.04.21. PB.   |

|                                                                                                                                                                                    |                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rev.                                                                                                                                                                               | Date/Checked                                                                          |
| The Old Rectory Rectory Lane Milton Malsor<br>NORTHAMPTON NN7 3AQ<br>t: +44 (0)1604 858916 f: +44 (0)1604 859123<br><a href="http://www.peter-haddon.com">www.peter-haddon.com</a> |  |

Proposed Logistics / Industrial Development  
Oxenwood Real Estate  
Woodside Road, Eastleigh South

Location Plan

| Status | Planning Issue |
|--------|----------------|
|--------|----------------|

|       |    |         |     |
|-------|----|---------|-----|
| Drawn | PB | Checked | JCL |
|-------|----|---------|-----|

|      |            |
|------|------------|
| Date | April 2021 |
|------|------------|

|                 |            |      |       |      |      |          |          |
|-----------------|------------|------|-------|------|------|----------|----------|
| Project Number: |            |      |       |      |      |          |          |
| Project Code    | Originator | Zone | Level | Type | Role | Drp. No. | Revision |
| SES-            | pHp-       | XX-  | XX-   | DR-  | A-   | 4467-    | A100 P2  |

Scale @ A1 As indicated

0 25m 50m

SCALE 1:1000

Copyright reserved. Dimensions to be checked on site.  
Discrepancies to be reported before proceeding.

N



Proposed Detail Site Plan  
1 : 250

External Finishes Legend

- Concrete service yard and parking bays**  
Concrete slab on sub-base/capping designed to suit ground conditions to Engineers specification.
- Landscape areas**  
Refer to landscape architect's information for details
- Pedestrian Paving**  
60mm thick colour: Charcoal concrete block paving will be laid on a 50mm bed of sand, well vibrated, with joints filled with dry wash sand
- Gravel**  
To align pedestrian footpaths around perimeter of building where shown. 150mm width. Also aligning RMU and metering cabinets, sprinkler tanks etc.

- New Security Fencing:**  
Paladin 2.4m high weldmesh V-mex Fencing to perimeter of service yard & 2.4m high to the outer Northern (Site entrance) perimeter where shown by thick dotted line (as below) and marked 'secure fence line'  
Colour: Dark Green RAL 6005
- Planning / Demise boundary**
- Indicative existing soft planting areas**

- Drainage Proposals**  
For drainage details please refer to RPS drawing
- External Lighting Proposals**  
For external lighting levels please refer to CPW drawings
- Site and Building Levels**  
For site levels please refer to RPS Drawing

**Structural Columns**  
All column sizes and locations shown are subject to confirmation by the appointed structural engineer / specialist steel frame sub-contractor and coordination with occupiers internal layout.

BUILDING AREA SCHEDULE

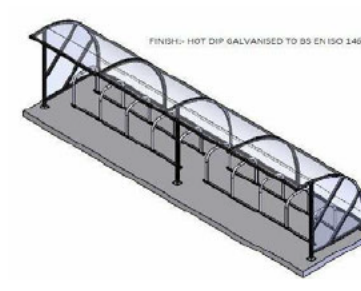
- Unit 01 - 13,303sqft (1,234sqm)
- Unit 02 - 13,270sqft (1,232sqm)
- Unit 03 - 13,277sqft (1,234sqm)
- Unit 04 - 14,686sqft (1,363sqm)
- Unit 05 - 16,339sqft (1,518sqm)

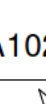
Total - 70,875 sqft (6,581sqm)

- Ring Main Unit (RMU)**  
GRP enclosure for incoming electrical services  
Frame Colour: RAL dark green 14-C-39
- Dimensions (upto):**  
Width: 4000 mm  
Depth: 4000 mm  
Height: 2400 mm  
Area: 16sqm
- Cycle Shelter:**  
Cycle shelter and cycle hoops.  
Frame Colour: PPC finish. Colour RAL 7016



**Pedestrian footpaths**  
Concrete block paving to pedestrian footpaths within site boundary  
Colour: Charcoal



|                                                                                                       |            |                                                                                       |     |
|-------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------|-----|
| PS: Total unit area amended                                                                           |            | 11.05.2021                                                                            | JCL |
| P2: Unit 04 footprint increased / Unit 5 revised site area.                                           |            | 29.04.21                                                                              | PB  |
| P1: First Issue                                                                                       |            | 27.04.21                                                                              | PB  |
| Rev.                                                                                                  |            | Date/Checked                                                                          |     |
| The Old Rectory Rectory Lane Milton Harbor                                                            |            |  |     |
| H 017 744 1011 H 017 744 01                                                                           |            |                                                                                       |     |
| T: +44 (0)1604 859916 F: +44 (0)1604 859123                                                           |            |                                                                                       |     |
| www.peter-haddon.com                                                                                  |            |                                                                                       |     |
| Proposed Logistics / Industrial Development                                                           |            |                                                                                       |     |
| Oxenwood Real Estate                                                                                  |            |                                                                                       |     |
| Woodside Road, Eastleigh South                                                                        |            |                                                                                       |     |
| Proposed Detail Site Plan                                                                             |            |                                                                                       |     |
| Status                                                                                                |            |                                                                                       |     |
| Drawn                                                                                                 | PB         | Checked                                                                               | JCL |
| Date                                                                                                  | April 2021 |                                                                                       |     |
| Project Number:                                                                                       |            |                                                                                       |     |
| SES- pHp- XX- XX- DR- A- 4467- A102- P3                                                               |            |                                                                                       |     |
| Scale @ A0                                                                                            |            | As indicated                                                                          |     |
| 0 5m 10m                                                                                              |            |  |     |
| SCALE 1:250                                                                                           |            |                                                                                       |     |
| Copyright reserved. Dimensions to be checked on site. Discrepancies to be reported before proceeding. |            |                                                                                       |     |



Colliers Project &  
Building Consultants  
The Harlequin Building  
65 Southwark Street,  
London,  
SE1 0HR

#### Key

Phase 2 Boreholes



Phase 1 Boreholes



Site boundary



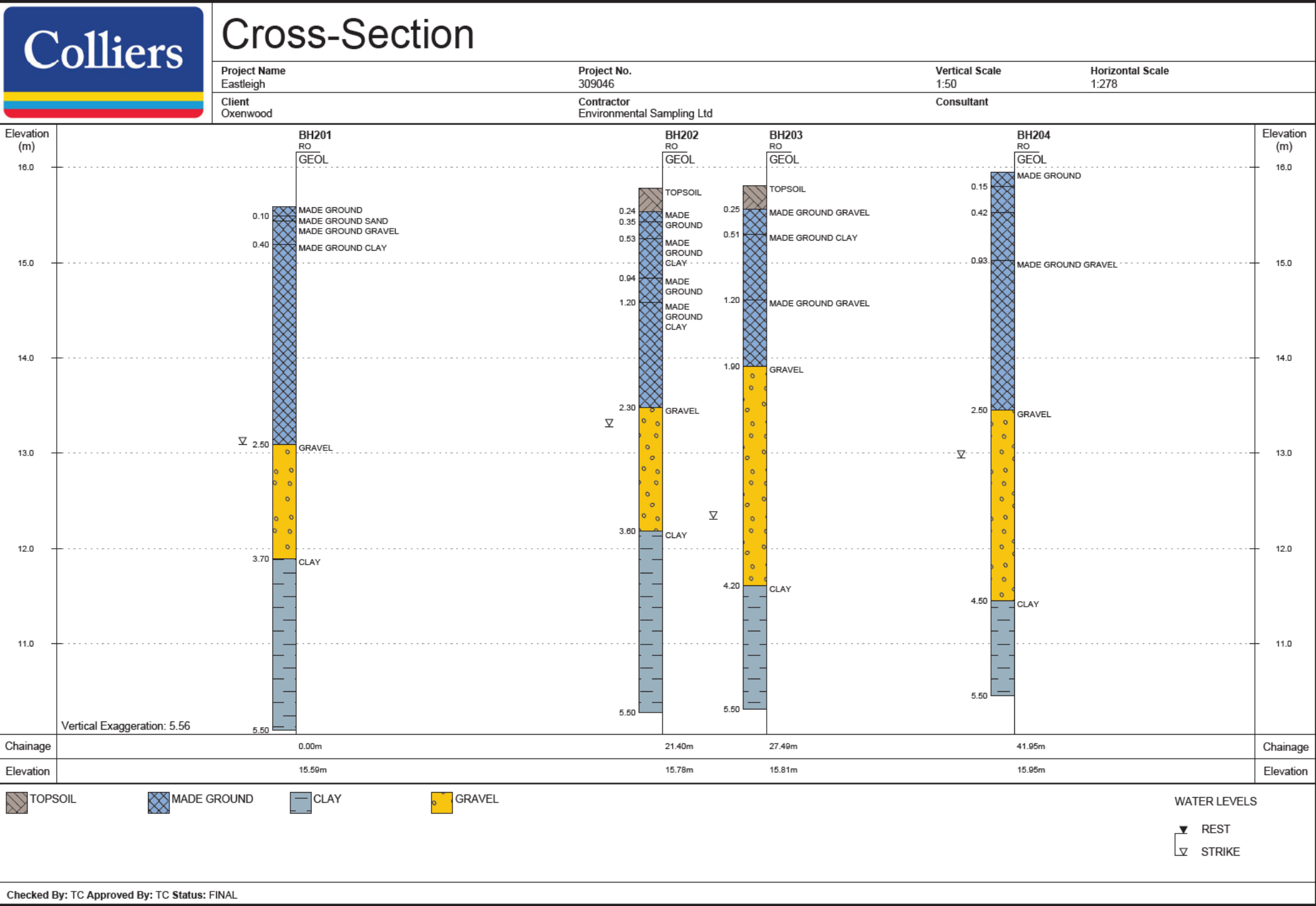
Google Maps

| Rev | Description |  |
|-----|-------------|--|
|     |             |  |
|     |             |  |
|     |             |  |

|                                  |                    |
|----------------------------------|--------------------|
| Project                          | Scale Not to Scale |
| 0304872 Woodside Road, Eastleigh | Drawn by CH        |
|                                  | Approved by CB     |
| Title                            | Drawing Number     |
| Proposed Borehole Location Plan  | 2                  |
|                                  | Date               |
|                                  | 07/02/24           |



## APPENDIX 2: BOREHOLE LOGS





# Borehole Log

## WS101

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>16.11</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444464.30</b>  | Northing<br><b>119696.76</b> | Start Date<br><b>18/09/2023</b> | End Date<br><b>18/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata |                                                                                                                                                                                   |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend | Description                                                                                                                                                                       |
|      |                  | 0.10    |    | ES   |       |      |         |              | (0.30)                      |        | TOPSOIL: Loose dark brown slightly gravelly SAND. Gravel is fine to coarse subangular to subrounded Flint. Sand is fine to coarse. With occasional rootlets and organic material. |
|      |                  | 0.50    |    | ES   |       |      |         | 15.81        | 0.30                        |        | MADE GROUND: Loose light brown slightly clayey gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, angular flint.                                                    |
|      |                  | 0.90    |    | ES   |       |      |         | 15.11        | 1.00                        |        | Soft brownish grey slightly silty slightly sandy CLAY. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]                                                                           |
|      |                  | 1.50    |    | ES   |       |      |         |              | (0.90)                      |        | Colour change between 1.5m and 2m to dark grey.                                                                                                                                   |
|      |                  | 2.00    |    | ES   |       |      |         | 14.21        | 1.90                        |        | Brownish grey slightly sandy slightly clayey GRAVEL. [RIVER TERRACE DEPOSITS]                                                                                                     |
|      |                  |         |    |      |       |      |         | 12.71        | 3.40                        |        | End of Borehole at 3.40m                                                                                                                                                          |

**Remarks**  
1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 1.3 m bgl.

Logged By BM / CM / CB



# Borehole Log

**WS102**

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.76</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444527.94</b>  | Northing<br><b>119634.24</b> | Start Date<br><b>12/09/2023</b> | End Date<br><b>12/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata |                                                                                                                                               |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend | Description                                                                                                                                   |
|      |                  | 0.10    |    | ES   |       |      |         | 15.66        | (0.10)                      |        | MADE GROUND: Fine to coarse SAND.                                                                                                             |
|      |                  |         |    |      |       |      |         |              | (0.40)                      |        | TOPSOIL: Loose brown slightly clayey gravelly SAND. Gravel is angular coarse flint. Sand is fine to coarse.                                   |
|      |                  |         |    |      |       |      |         | 15.26        | 0.50                        |        | MADE GROUND: Loose brown slightly clayey slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular brick and flint.                |
|      |                  |         |    |      |       |      |         | 15.06        | 0.70                        |        | Loose light brown slightly gravelly slightly clayey SAND. Sand is fine to medium. Gravel is subangular coarse flint. [RIVER TERRACE DEPOSITS] |
|      |                  | 1.60    |    | ES   |       |      |         | 14.26        | 1.50                        |        | Dense light brown slightly clayey sandy GRAVEL. Gravel is angular to subangular Flint. Sand is coarse. [RIVER TERRACE DEPOSITS]               |
|      |                  |         |    |      |       |      |         |              | (2.50)                      |        | Colour change between 2.5m to 3.5m to light grey.                                                                                             |
|      |                  |         |    |      |       |      |         | 11.76        | 4.00                        |        | End of Borehole at 4.00m                                                                                                                      |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                               |

**Remarks**

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.7 m bgl.

Logged By BM / CM / CB



# Borehole Log

**WS103**

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.75</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444534.35</b>  | Northing<br><b>119650.59</b> | Start Date<br><b>12/09/2023</b> | End Date<br><b>12/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata |                                                                                                                                 |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend | Description                                                                                                                     |
|      |                  |         |    |      |       |      |         |              |                             |        | MADE GROUND: Block paving over GRAVEL. Pea shingle for permeable paving.                                                        |
|      |                  |         |    |      |       |      |         | 15.35        | 0.40<br>(0.40)              |        | MADE GROUND: Dense brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular brick and concrete. |
|      |                  |         |    |      |       |      |         | 14.95        | 0.80<br>(0.40)              |        | MADE GROUND: Light brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular brick, concrete and flint.   |
|      |                  | 1.30    |    | ES   |       |      |         | 14.55        | 1.20<br>(0.20)              |        | Dark grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular flint. [RIVER TERRACE DEPOSITS]       |
|      |                  | 1.50    |    | ES   |       |      |         | 14.35        | 1.40                        |        | Light brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular flint. [RIVER TERRACE DEPOSITS]    |
|      |                  |         |    |      |       |      |         |              | (2.20)                      |        |                                                                                                                                 |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                 |
|      |                  |         |    |      |       |      |         | 12.15        | 3.60<br>(0.40)              |        | Soft grey slightly silty CLAY. [WITTERING FORMATION]                                                                            |
|      |                  | 3.70    |    | ES   |       |      |         | 11.75        | 4.00                        |        |                                                                                                                                 |
|      |                  |         |    |      |       |      |         |              |                             |        | End of Borehole at 4.00m                                                                                                        |

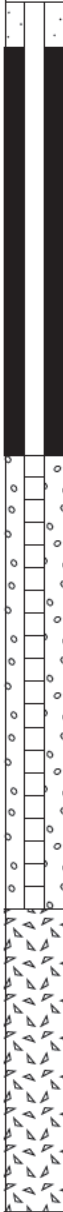
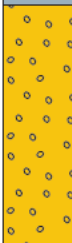
**Remarks**

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.6 m bgl.

Logged By BM / CM / CB



|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>16.36</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444354.92</b>  | Northing<br><b>119757.22</b> | Start Date<br><b>15/09/2023</b> | End Date<br><b>15/09/2023</b> |

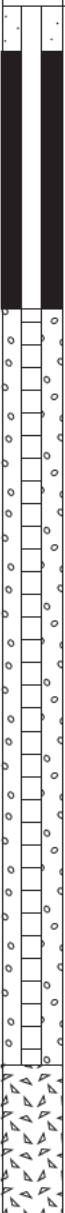
| Well                                                                              | Water<br>Strikes                                                                    | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata                                                                            |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|--------|--|--|---------------------------------------------------------------------------------------|-------|------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--|--------|--|--|---------------------------------------------------------------------------------------|-------|------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------|------|--|---------------------------------|---------------------------------------------------------------------------------------|
|                                                                                   |                                                                                     | From    | To | Type | Depth | Type | Results |              |                             | Legend                                                                            | Description                                                                                                  |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|  |  | 0.50    |    | ES   |       |      |         |              |                             |  | MADE GROUND: Brown slightly clayey gravelly SAND. Gravel is subangular coarse flint. Sand is fine to coarse. |  |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     | 15.66 | 0.70 |  | Soft to firm brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium sub rounded flint. [RIVER TERRACE DEPOSITS] |  |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     | 14.96 | 1.40 |  | Light brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular flint. [RIVER TERRACE DEPOSITS] |  |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     | 14.66 | 1.70 |  | Soft becoming firm light brown slightly sandy CLAY. Sand is fine to medium. [RIVER TERRACE DEPOSITS] |  |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  | (1.10) |  |  |  |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       | 13.56 | 2.80 |  | Light brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular flint. [RIVER TERRACE DEPOSITS] |  |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  | (0.80) |  |  |  |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       | 12.76 | 3.60 |  | Very soft to soft slightly brownish grey slightly gravelly CLAY. Gravel is subangular fine to coarse flint. [WITTERING FORMATION] |  |       |      |  |                                 |                                                                                       |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       | 12.36 | 4.00 |  | <i>End of Borehole at 4.00m</i> |  |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              |                             |                                                                                   |                                                                                                              |                                                                                     |       |      |                                                                                   |                                                                                                                                                        |                                                                                     |       |      |                                                                                   |                                                                                                                                       |                                                                                     |       |      |                                                                                    |                                                                                                      |                                                                                      |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                       |                                                                                       |  |        |  |  |                                                                                       |       |      |                                                                                     |                                                                                                                                   |                                                                                       |       |      |  |                                 |                                                                                       |

## Remarks

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 3.4 m bgl.

Logged By BM / CM / CB

Project  
EastleighProject No.  
304872Ground Level  
15.99Hole Type  
WSScale  
1:25Client  
OxenwoodEasting  
444340.60Northing  
119713.01Start Date  
13/09/2023End Date  
13/09/2023

| Well                                                                              | Water<br>Strikes                                                                    | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata                                                                              |                                                                                                                                                                |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                   |                                                                                     | From    | To | Type | Depth | Type | Results |              |                             | Legend                                                                              | Description                                                                                                                                                    |
|  |  | 0.10    |    | ES   |       |      |         |              |                             |    | MADE GROUND: Light brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded. With rare cobbles of concrete, brick and flint. |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.60)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 15.39        | 0.60                        |    | MADE GROUND: Firm light brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded.                                           |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 15.14        | 0.85                        |    | Light brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular flint. [RIVER TERRACE DEPOSITS]                                                         |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.55)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 14.59        | 1.40                        |    | Soft to firm dark brownish grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular. [RIVER TERRACE DEPOSITS]                  |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.30)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 14.29        | 1.70                        |   | Light brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse flint. [RIVER TERRACE DEPOSITS]                          |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.30)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 13.99        | 2.00                        |  | Soft to firm brown slightly gravelly CLAY. Gravel is fine rounded flint. [RIVER TERRACE DEPOSITS]                                                              |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.60)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 13.39        | 2.60                        |  | Brownish grey slightly sandy slightly clayey GRAVEL. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]                                                          |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (1.00)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 12.39        | 3.60                        |  | Very soft dark grey slightly sandy CLAY. Sand is fine. [WITTERING FORMATION]                                                                                   |
|                                                                                   |                                                                                     |         |    |      |       |      |         |              | (0.40)                      |                                                                                     |                                                                                                                                                                |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 11.99        | 4.00                        | End of Borehole at 4.00m                                                            |                                                                                                                                                                |

## Remarks

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.6 m bgl.

Logged By BM / CM / CB



# Borehole Log

**WS107**

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.90</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444419.25</b>  | Northing<br><b>119730.90</b> | Start Date<br><b>11/09/2023</b> | End Date<br><b>11/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata |                                                                                                                                                                    |                          |     |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend | Description                                                                                                                                                        |                          |     |
|      |                  | 0.10    |    | ES   |       |      |         |              | (0.30)                      |        | TOPSOIL: Loose dark brown slightly gravelly SAND. Gravel is fine to medium subangular to rounded flint. Sand is fine to coarse with rootlets and organic material. |                          |     |
|      |                  |         |    |      |       |      |         | 15.60        | 0.30                        |        | MADE GROUND: Loose dark brown sandy GRAVEL. Sand is fine to coarse. Gravel is angular fine to coarse concrete.                                                     |                          |     |
|      |                  |         |    |      |       |      |         | 15.50        | 0.40                        |        | MADE GROUND: Soft to firm light brown gravelly CLAY. Gravel is subangular fine to coarse.                                                                          | 0.5                      |     |
|      |                  |         |    |      |       |      |         | 15.20        | 0.70                        |        | Soft light orangey brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub angular [RIVER TERRACE DEPOSITS]                             |                          |     |
|      |                  |         |    |      |       |      |         |              | (1.50)                      |        |                                                                                                                                                                    | 1.0                      |     |
|      |                  | 1.00    |    | ES   |       |      |         |              |                             |        |                                                                                                                                                                    |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 1.5                      |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 2.0                      |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 2.5                      |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 3.0                      |     |
|      |                  | 3.00    |    | ES   |       |      |         |              |                             |        | Medium dense light brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse flint. [RIVER TERRACE DEPOSITS]                 |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 3.5                      |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    | 4.0                      |     |
|      |                  |         |    |      |       |      |         |              | 11.90                       | 4.00   |                                                                                                                                                                    | End of Borehole at 4.00m |     |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          | 4.5 |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                                                                    |                          | 5.0 |

**Remarks**

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.6 m bgl.

Logged By BM / CM / CB



# Borehole Log

## WS108

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.99</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444530.55</b>  | Northing<br><b>119692.46</b> | Start Date<br><b>12/09/2023</b> | End Date<br><b>12/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata                                    |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend                                    | Description                                                                                                            |                                                                                                                                       |                                                                                                                                            |
|      |                  | 0.90    |    | ES   |       |      |         | 15.69        | (0.30)                      |                                           | TOPSOIL: Loose dark brown slightly gravelly SAND. Gravel is subangular flint. Sand is fine to coarse.                  | 0.5                                                                                                                                   |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              | 0.30                        |                                           | MADE GROUND: Loose light brown gravelly SAND. Sand is fine to coarse. Gravel is subangular concrete brick and clinker. |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              | (0.50)                      |                                           |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              | 15.19                       | 0.80                                      |                                                                                                                        |                                                                                                                                       | MADE GROUND: Loose brown sandy GRAVEL. Gravel is subangular fine to coarse brick, flint, concrete and slate. With brick cobbles 100X150mm. |
|      |                  | 1.80    |    | ES   |       |      |         |              | 14.29                       | (0.90)                                    |                                                                                                                        |                                                                                                                                       | 1.5                                                                                                                                        |
|      |                  |         |    |      |       |      |         |              |                             | 1.70                                      |                                                                                                                        | Dense brown clayey slightly sandy GRAVEL. Gravel is subangular fine to coarse flint. Sand is fine to coarse. [RIVER TERRACE DEPOSITS] |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             | (2.10)                                    |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             |                                           |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             |                                           |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             |                                           |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
| 3.90 |                  | ES      |    |      |       |      | 12.19   | 3.80         |                             | Soft dark grey CLAY [WITTERING FORMATION] | 4.0                                                                                                                    |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         | (0.20)       |                             |                                           |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      | 11.99   | 4.00         |                             | End of Borehole at 4.00m                  |                                                                                                                        |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             |                                           | 4.5                                                                                                                    |                                                                                                                                       |                                                                                                                                            |
|      |                  |         |    |      |       |      |         |              |                             |                                           | 5.0                                                                                                                    |                                                                                                                                       |                                                                                                                                            |

**Remarks**  
1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.8 m bgl.

Logged By BM / CM / CB

|                      |                       |                       |                          |                        |
|----------------------|-----------------------|-----------------------|--------------------------|------------------------|
| Project<br>Eastleigh | Project No.<br>304872 | Ground Level<br>15.92 | Hole Type<br>WS          | Scale<br>1:25          |
| Client<br>Oxenwood   | Easting<br>444558.31  | Northing<br>119679.37 | Start Date<br>12/09/2023 | End Date<br>12/09/2023 |

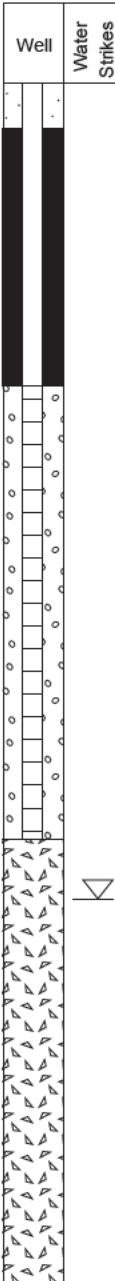
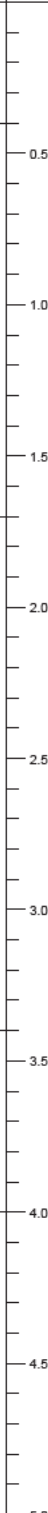
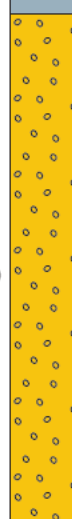
[illegible]

## Remarks

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.9 m bgl.

Logged By BM / CM / CB

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.70</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444549.82</b>  | Northing<br><b>119647.97</b> | Start Date<br><b>15/09/2023</b> | End Date<br><b>15/09/2023</b> |

| Well                                                                              | Water Strikes                                                                       | Samples |    |      | Tests |      |         | Level (m) | Depth (thickness) (m) | Strata                                                                              |                                                                                                                                         |                                                                                      |                                                                                                                                          |     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|----|------|-------|------|---------|-----------|-----------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                                                                                   |                                                                                     | From    | To | Type | Depth | Type | Results |           |                       | Legend                                                                              | Description                                                                                                                             |                                                                                      |                                                                                                                                          |     |
|  |  | 0.10    |    | ES   |       |      |         | 15.30     | (0.40)                |    | TOPSOIL: Loose dark brown slightly gravelly SAND. Gravel is fine to coarse subangular. Sand is fine to coarse. [RIVER TERRACE DEPOSITS] |  |                                                                                                                                          |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | 0.40                  |    | Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded. Sand is fine to coarse. [RIVER TERRACE DEPOSITS]      |                                                                                      | 0.5                                                                                                                                      |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | (1.30)                |                                                                                     |                                                                                                                                         |                                                                                      | 1.0                                                                                                                                      |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           |                       |                                                                                     |                                                                                                                                         |                                                                                      | 1.5                                                                                                                                      |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | 14.00                 | 1.70                                                                                |                                                       |                                                                                      | Light brown slightly clayey slightly sandy GRAVEL. Gravel is fine to coarse subangular. Sand is fine to coarse. [RIVER TERRACE DEPOSITS] | 2.0 |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | (1.70)                |                                                                                     |                                                                                                                                         |                                                                                      | 2.5                                                                                                                                      |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         | 12.30     | 3.40                  |  | Soft light grey silty CLAY. [WITTERING FORMATION]                                                                                       | 3.0                                                                                  |                                                                                                                                          |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           |                       |                                                                                     |                                                                                                                                         | 3.5                                                                                  |                                                                                                                                          |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | (0.60)                |                                                                                     |                                                                                                                                         | 4.0                                                                                  |                                                                                                                                          |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           | 11.70                 | 4.00                                                                                |                                                                                                                                         | End of Borehole at 4.00m                                                             | 4.5                                                                                                                                      |     |
|                                                                                   |                                                                                     |         |    |      |       |      |         |           |                       |                                                                                     |                                                                                                                                         | 5.0                                                                                  |                                                                                                                                          |     |

## Remarks

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.7 m bgl.

Logged By BM / CM / CB



# Borehole Log

## WS111

Sheet 1 of 1

|                             |                              |                              |                                 |                               |
|-----------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|
| Project<br><b>Eastleigh</b> | Project No.<br><b>304872</b> | Ground Level<br><b>15.74</b> | Hole Type<br><b>WS</b>          | Scale<br><b>1:25</b>          |
| Client<br><b>Oxenwood</b>   | Easting<br><b>444527.43</b>  | Northing<br><b>119648.50</b> | Start Date<br><b>18/09/2023</b> | End Date<br><b>18/09/2023</b> |

| Well | Water<br>Strikes | Samples |    |      | Tests |      |         | Level<br>(m) | Depth<br>(thickness)<br>(m) | Strata |                                                                                                                              |
|------|------------------|---------|----|------|-------|------|---------|--------------|-----------------------------|--------|------------------------------------------------------------------------------------------------------------------------------|
|      |                  | From    | To | Type | Depth | Type | Results |              |                             | Legend | Description                                                                                                                  |
|      |                  |         |    |      |       |      |         |              |                             |        | MADE GROUND: Concrete hardstanding.                                                                                          |
|      |                  |         |    |      |       |      |         | 15.54        | (0.20)                      |        | MADE GROUND: Light brown sandy GRAVEL. Gravel is fine to coarse subangular concrete and flint. Sand is fine to coarse.       |
|      |                  | 0.40    |    | ES   |       |      |         |              | 0.20                        |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         |              | (0.50)                      |        |                                                                                                                              |
|      |                  | 0.60    |    | ES   |       |      |         |              |                             |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         | 15.04        | 0.70                        |        | Soft to firm brownish grey silty slightly gravelly CLAY. Gravel is fine to coarse subangular. [RIVER TERRACE DEPOSITS]       |
|      |                  | 0.90    |    | ES   |       |      |         |              | (0.20)                      |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         | 14.84        | 0.90                        |        | Light brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular flint. [RIVER TERRACE DEPOSITS] |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                              |
|      |                  | 1.50    |    | ES   |       |      |         |              | (2.30)                      |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         |              |                             |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         | 12.54        | 3.20                        |        | Very soft to soft light grey silty CLAY. [WITTERING FORMATION]                                                               |
|      |                  | 3.30    |    | ES   |       |      |         |              | (0.20)                      |        |                                                                                                                              |
|      |                  |         |    |      |       |      |         | 12.34        | 3.40                        |        | End of Borehole at 3.40m                                                                                                     |

### Remarks

1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Borehole installed with 50mm HDPE pipe. Granular material collapse on installation at depth. 4. Difficulty advancing casing through granular material, causing collapse of gravels and early termination. 5. Groundwater encountered at 2.4 m bgl.

Logged By BM / CM / CB



|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------|-------------------------------------------------------------|---------------------------|--------------------|
|                                                                                                                                         | <h1>Open Hole Log</h1> |                                          |                                                             |                           | <h2>BH201</h2>     |
|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           | SUPPLEMENTARY INFO |
|                                                                                                                                                                                                                        | Hole Type<br>RO        | Easting<br>444532.80                     | Northing<br>119631.64                                       | Ground Level (m)<br>15.59 | Scale<br>1:50      |
| Project Name<br>Eastleigh                                                                                                                                                                                              |                        | Project No.<br>309046                    | Start Date<br>2024-02-12                                    | End Date<br>2024-02-12    |                    |
| Client<br>Oxenwood                                                                                                                                                                                                     |                        | Contractor<br>Environmental Sampling Ltd | Consultant                                                  |                           |                    |
| <b>Water Strike - General</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Seal Depth (m)         | Casing Depth (m)                         | Date and Time                                               | Remarks                   |                    |
| 2.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <b>Water Strike - Details</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Rose To (m)            | Time (mins)                              | Remarks                                                     |                           |                    |
| 2.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <div></div>                                                                                                                                                                                                            |                        |                                          |                                                             |                           |                    |
| <b>Remarks</b><br>1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. |                        |                                          | <b>Method, Plant, Stability, Dimensions</b><br>0.00 - 5.50m |                           |                    |
| <b>Checked By:</b> TC <b>Approved By:</b> TC <b>Status:</b> FINAL                                                                                                                                                      |                        |                                          | <b>Logger</b><br>BH                                         |                           |                    |

|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------|----------------------|--------------------------|---------------------------|------------------------|------------|------|--------------|--------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| <div>Colliers</div>                                                                                                                                                                                  |                 | Open Hole Log                            |                      |                          |                           | BH202                  |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 | Sheet 1 of 1                             |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 | Hole Type<br>RO                          | Easting<br>444548.44 | Northing<br>119646.25    | Ground Level (m)<br>15.78 | Scale<br>1:50          |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
| Project Name<br>Eastleigh                                                                                                                                                                            |                 | Project No.<br>309046                    |                      | Start Date<br>2024-02-13 |                           | End Date<br>2024-02-13 |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
| Client<br>Oxenwood                                                                                                                                                                                   |                 | Contractor<br>Environmental Sampling Ltd |                      |                          | Consultant                |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
| Inst/<br>Backfill                                                                                                                                                                                    | Water<br>Levels | Samples and Tests                        |                      |                          | Coring                    |                        |            | Frac | Level<br>(m) | Depth<br>(m)                         | Strata     |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 | Depth (m)                                | Type/<br>Ref         | Results                  | Core<br>Run               | TCR<br>(%)             | SCR<br>(%) |      |              |                                      | RQD<br>(%) | Legend                                                                                                                                                                        |                                                                                                                                      | Description                                                                                                                                  |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      | 15.54        | (0.24)                               |            | TOPSOIL: Loose bark chippings over dark brown clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded brick. With occasional rootlets. |                                                                                                                                      |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      | 15.43        | (0.11)                               |            |                                                                                                                                                                               | MADE GROUND: Light brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded concrete and brick. | 0.5                                                                                                                                          |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      | 15.25        | (0.35)                               |            |                                                                                                                                                                               | MADE GROUND: Greyish brown sandy slightly clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded.  |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      | (0.41)     |                                                                                                                                                                               | MADE GROUND: Soft to firm light greyish mottled brown gravelly CLAY. Gravel is fine to coarse angular to subangular.                 | 1.0                                                                                                                                          |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              | 14.84                                | (0.26)     |                                                                                                                                                                               | MADE GROUND: Light brown clayey GRAVEL. Gravel is fine to coarse angular to subangular flint.                                        |                                                                                                                                              |                                                  |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      | 14.58      | 1.20                                                                                                                                                                          |                                                                                                                                      | MADE GROUND: Soft to firm dark brown gravelly CLAY. Gravel is fine to coarse angular to subangular.                                          | 1.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            | (1.10)                                                                                                                                                                        |                                                                                                                                      |                                                                                                                                              | 2.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      | Greyish brown clayey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular. [RIVER TERRACE DEPOSITS] | 2.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      | (1.30)                                                                                                                                       | Moderate hydrocarbon odour noted. (2.30 - 3.60m) |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      | Very soft to soft brownish mottled grey CLAY with rare occasional gravel. Gravel is fine to coarse subangular flint. [WITTERING FORMATION]   | 3.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            | (1.90)                                                                                                                                                                        |                                                                                                                                      | Moderate hydrocarbon odour noted. (3.60 - 5.50m)                                                                                             | 4.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 4.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 5.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 5.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 6.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 6.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 7.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 7.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 8.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 8.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 9.0                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 9.5                                              |
|                                                                                                                                                                                                      |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              | 10.0                                             |
| Remarks                                                                                                                                                                                              |                 |                                          |                      |                          |                           |                        |            |      |              | Method, Plant, Stability, Dimensions |            |                                                                                                                                                                               | Logger                                                                                                                               |                                                                                                                                              |                                                  |
| 1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. |                 |                                          |                      |                          |                           |                        |            |      |              | 0.00 - 5.50m                         |            |                                                                                                                                                                               | BH                                                                                                                                   |                                                                                                                                              |                                                  |
| 4. Groundwater encountered at 2.5 m bgl.                                                                                                                                                             |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |
| Checked By: TC    Approved By: TC    Status: FINAL                                                                                                                                                   |                 |                                          |                      |                          |                           |                        |            |      |              |                                      |            |                                                                                                                                                                               |                                                                                                                                      |                                                                                                                                              |                                                  |

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------|-------------------------------------------------------------|---------------------------|--------------------|
|                                                                                                                                         | <h1>Open Hole Log</h1> |                                          |                                                             |                           | <h2>BH202</h2>     |
|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           | SUPPLEMENTARY INFO |
|                                                                                                                                                                                                                        | Hole Type<br>RO        | Easting<br>444548.44                     | Northing<br>119646.25                                       | Ground Level (m)<br>15.78 | Scale<br>1:50      |
| Project Name<br>Eastleigh                                                                                                                                                                                              |                        | Project No.<br>309046                    | Start Date<br>2024-02-13                                    | End Date<br>2024-02-13    |                    |
| Client<br>Oxenwood                                                                                                                                                                                                     |                        | Contractor<br>Environmental Sampling Ltd | Consultant                                                  |                           |                    |
| <b>Water Strike - General</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Seal Depth (m)         | Casing Depth (m)                         | Date and Time                                               | Remarks                   |                    |
| 2.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <b>Water Strike - Details</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Rose To (m)            | Time (mins)                              | Remarks                                                     |                           |                    |
| 2.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <div></div>                                                                                                                                                                                                            |                        |                                          |                                                             |                           |                    |
| <b>Remarks</b><br>1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. |                        |                                          | <b>Method, Plant, Stability, Dimensions</b><br>0.00 - 5.50m |                           |                    |
| <b>Checked By:</b> TC <b>Approved By:</b> TC <b>Status:</b> FINAL                                                                                                                                                      |                        |                                          | <b>Logger</b><br>BH                                         |                           |                    |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| <div>Colliers</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 | Open Hole Log         |              |                                          |             | BH203                    |            |                           |      |               |                                      |                          |                 |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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                                                                                                              |                 |                       |              |                                          |             | Sheet 1 of 1             |            |                           |      |               |                                      |                          |                 |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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                                                                                                              |                 | Hole Type<br>RO       |              | Easting<br>444551.92                     |             | Northing<br>119651.24    |            | Ground Level (m)<br>15.81 |      | Scale<br>1:50 |                                      |                          |                 |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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| Project Name<br>Eastleigh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | Project No.<br>309046 |              |                                          |             | Start Date<br>2024-02-13 |            | End Date<br>2024-02-13    |      |               |                                      |                          |                 |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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| Client<br>Oxenwood                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |                       |              | Contractor<br>Environmental Sampling Ltd |             |                          |            | Consultant                |      |               |                                      |                          |                 |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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| <table><tr><td rowspan="2">Inst/<br/>Backfill</td><td rowspan="2">Water<br/>Levels</td><td colspan="3">Samples and Tests</td><td colspan="4">Coring</td><td rowspan="2">Frac</td><td rowspan="2">Level<br/>(m)</td><td rowspan="2">Depth<br/>(m)</td><td colspan="2">Strata</td><td rowspan="2"></td></tr><tr><td>Depth (m)</td><td>Type/<br/>Ref</td><td>Results</td><td>Core<br/>Run</td><td>TCR<br/>(%)</td><td>SCR<br/>(%)</td><td>RQD<br/>(%)</td><td>Legend</td><td>Description</td></tr><tr><td rowspan="10"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>15.56</td><td>(0.25)<br/>0.25<br/>(0.28)</td><td></td><td>TOPSOIL: Loose bark chippings over dark brown clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded brick. With occasional rootlets.</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>15.30</td><td>0.51<br/>(0.69)</td><td></td><td>MADE GROUND: Light brown sandy GRAVEL with concrete. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded.</td><td>0.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.61</td><td>1.20<br/>(0.70)</td><td></td><td>MADE GROUND: Soft to firm light brown slightly sandy CLAY with occasional gravel. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded.</td><td>1.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>13.91</td><td>1.90<br/>(2.30)</td><td></td><td>MADE GROUND: Light brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded.</td><td>1.5</td></tr><tr><td></td><td></td><td>2.00<br/>2.00</td><td>PID<br/>ES 1</td><td>0.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Light greyish brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular. [RIVER TERRACE DEPOSITS]</td><td>2.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3.5</td></tr><tr><td></td><td></td><td>3.50<br/>3.50</td><td>PID<br/>ES 2</td><td>0.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>4.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>4.5</td></tr><tr><td></td><td></td><td>4.30<br/>4.30</td><td>PID<br/>ES 3</td><td>0.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td>11.61</td><td>4.20<br/>(1.30)</td><td></td><td>Very soft to soft brown mottled grey slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded flint. [WITTERING FORMATION]</td><td>4.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>10.31</td><td>5.50</td><td></td><td>End of Borehole at 5.50m</td><td></td><td>5.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>6.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>6.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>7.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>7.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>8.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>8.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9.0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9.5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>10.0</td></tr></table> |                 |                       |              |                                          |             |                          |            |                           |      |               |                                      | Inst/<br>Backfill        | Water<br>Levels | Samples and Tests                                                                                                                                                             |                                                                                                                                                    |      | Coring |  |  |  | Frac | Level<br>(m) | Depth<br>(m) | Strata |  |  | Depth (m) | Type/<br>Ref | Results | Core<br>Run | TCR<br>(%) | SCR<br>(%) | RQD<br>(%) | Legend | Description |  |  |  |  |  |  |  |  |  |  |  | 15.56 | (0.25)<br>0.25<br>(0.28) |  | TOPSOIL: Loose bark chippings over dark brown clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded brick. With occasional rootlets. |  |  |  |  |  |  |  |  |  |  |  | 15.30 | 0.51<br>(0.69) |  | MADE GROUND: Light brown sandy GRAVEL with concrete. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded. | 0.5 |  |  |  |  |  |  |  |  |  |  | 14.61 | 1.20<br>(0.70) |  | MADE GROUND: Soft to firm light brown slightly sandy CLAY with occasional gravel. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded. | 1.0 |  |  |  |  |  |  |  |  |  |  | 13.91 | 1.90<br>(2.30) |  | MADE GROUND: Light brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded. | 1.5 |  |  | 2.00<br>2.00 | PID<br>ES 1 | 0.00 |  |  |  |  |  |  |  |  |  | Light greyish brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular. [RIVER TERRACE DEPOSITS] | 2.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3.5 |  |  | 3.50<br>3.50 | PID<br>ES 2 | 0.00 |  |  |  |  |  |  |  |  |  |  |  | 4.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4.5 |  |  | 4.30<br>4.30 | PID<br>ES 3 | 0.00 |  |  |  |  |  |  | 11.61 | 4.20<br>(1.30) |  | Very soft to soft brown mottled grey slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded flint. [WITTERING FORMATION] | 4.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 5.0 |  |  |  |  |  |  |  |  |  |  |  | 10.31 | 5.50 |  | End of Borehole at 5.50m |  | 5.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 8.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 8.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 9.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 9.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 10.0 |
| Inst/<br>Backfill                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Water<br>Levels | Samples and Tests     |              |                                          | Coring      |                          |            |                           | Frac | Level<br>(m)  | Depth<br>(m)                         |                          |                 | Strata                                                                                                                                                                        |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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                                                                                                              |                 | Depth (m)             | Type/<br>Ref | Results                                  | Core<br>Run | TCR<br>(%)               | SCR<br>(%) | RQD<br>(%)                |      |               |                                      | Legend                   | Description     |                                                                                                                                                                               |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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                                                                                                              |                 |                       |              |                                          |             |                          |            |                           |      |               | 15.56                                | (0.25)<br>0.25<br>(0.28) |                 | TOPSOIL: Loose bark chippings over dark brown clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded brick. With occasional rootlets. |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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                                                                                                              |                 |                       |              |                                          |             |                          |            |                           |      |               | 15.30                                | 0.51<br>(0.69)           |                 | MADE GROUND: Light brown sandy GRAVEL with concrete. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded.                                               | 0.5                                                                                                                                                |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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                                                                                                              |                 |                       |              |                                          |             |                          |            |                           |      |               | 14.61                                | 1.20<br>(0.70)           |                 | MADE GROUND: Soft to firm light brown slightly sandy CLAY with occasional gravel. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded.                     | 1.0                                                                                                                                                |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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                                                                                                              |                 |                       |              |                                          |             |                          |            |                           |      |               | 13.91                                | 1.90<br>(2.30)           |                 | MADE GROUND: Light brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded.                                                | 1.5                                                                                                                                                |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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                                                                                                              |                 |                       | 2.00<br>2.00 | PID<br>ES 1                              | 0.00        |                          |            |                           |      |               |                                      |                          |                 |                                                                                                                                                                               | Light greyish brown slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular. [RIVER TERRACE DEPOSITS] | 2.0  |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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                                                                                                              |                 | 4.30<br>4.30          | PID<br>ES 3  | 0.00                                     |             |                          |            |                           |      |               | 11.61                                | 4.20<br>(1.30)           |                 | Very soft to soft brown mottled grey slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded flint. [WITTERING FORMATION]                                      | 4.5                                                                                                                                                |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                 |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                                           |     |  |  |  |  |  |  |  |  |  |  |       |                |  |                                                                                                                                |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |              |             |      |  |  |  |  |  |  |       |                |  |                                                                                                                                          |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |       |      |  |                          |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |
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| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                       |              |                                          |             |                          |            |                           |      |               | Method, Plant, Stability, Dimensions |                          |                 | Logger                                                                                                                                                                        |                                                                                                                                                    |      |        |  |  |  |      |              |              |        |  |  |           |              |         |             |            |            |            |        |             |  |  |  |  |  |  |  |  |  |  |  |       |                          |  |               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| 1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| 4. Groundwater encountered at 3.5 m bgl.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Checked By: TC    Approved By: TC    Status: FINAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------|-------------------------------------------------------------|---------------------------|--------------------|
|                                                                                                                                         | <h1>Open Hole Log</h1> |                                          |                                                             |                           | <h2>BH203</h2>     |
|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           | SUPPLEMENTARY INFO |
|                                                                                                                                                                                                                        | Hole Type<br>RO        | Easting<br>444551.92                     | Northing<br>119651.24                                       | Ground Level (m)<br>15.81 | Scale<br>1:50      |
| Project Name<br>Eastleigh                                                                                                                                                                                              |                        | Project No.<br>309046                    | Start Date<br>2024-02-13                                    | End Date<br>2024-02-13    |                    |
| Client<br>Oxenwood                                                                                                                                                                                                     |                        | Contractor<br>Environmental Sampling Ltd | Consultant                                                  |                           |                    |
| <b>Water Strike - General</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Seal Depth (m)         | Casing Depth (m)                         | Date and Time                                               | Remarks                   |                    |
| 3.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <b>Water Strike - Details</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Rose To (m)            | Time (mins)                              | Remarks                                                     |                           |                    |
| 3.50                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <div></div>                                                                                                                                                                                                            |                        |                                          |                                                             |                           |                    |
| <b>Remarks</b><br>1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. |                        |                                          | <b>Method, Plant, Stability, Dimensions</b><br>0.00 - 5.50m |                           |                    |
| <b>Checked By:</b> TC <b>Approved By:</b> TC <b>Status:</b> FINAL                                                                                                                                                      |                        |                                          | <b>Logger</b><br>BH                                         |                           |                    |

|                                                                                                                                                                                                                                             |                 |                                          |                          |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------|--------------------------|--------------------------|-----------------------|---------------------------|---------------|------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------|
| <div>Colliers</div>                                                                                                                                                                                                                         |                 | Open Hole Log                            |                          |                          |                       | BH204                     |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 |                                          |                          |                          |                       | Sheet 1 of 1              |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 | Hole Type<br>RO                          |                          | Easting<br>444538.45     | Northing<br>119656.51 | Ground Level (m)<br>15.95 | Scale<br>1:50 |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
| Project Name<br>Eastleigh                                                                                                                                                                                                                   |                 | Project No.<br>309046                    |                          | Start Date<br>2024-02-12 |                       | End Date<br>2024-02-12    |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
| Client<br>Oxenwood                                                                                                                                                                                                                          |                 | Contractor<br>Environmental Sampling Ltd |                          |                          |                       | Consultant                |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
| Inst/<br>Backfill                                                                                                                                                                                                                           | Water<br>Levels | Samples and Tests                        |                          |                          | Coring                |                           |               | Frac | Level<br>(m) | Depth<br>(m)                                                                                                                                        | Strata                                                                                                 |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 | Depth (m)                                | Type/<br>Ref             | Results                  | Core<br>Run           | TCR<br>(%)                | SCR<br>(%)    |      |              |                                                                                                                                                     | RQD<br>(%)                                                                                             | Legend                                                                                                                                                  |                                            | Description  |
|                                                                                                                                                                                                                                             |                 | 2.00                                     | PID<br>ES 1              | 0.00                     |                       |                           |               |      |              | 15.80                                                                                                                                               | (0.15)                                                                                                 |                                                                                                                                                         | MADE GROUND: Brick Paving                  |              |
|                                                                                                                                                                                                                                             |                 | 2.00                                     |                          |                          |                       |                           |               |      |              | 15.53                                                                                                                                               | (0.15)                                                                                                 |                                                                                                                                                         | MADE GROUND: Fine pea shingle.             |              |
|                                                                                                                                                                                                                                             |                 | 3.00                                     | 3.00                     | PID<br>ES 2              |                       |                           |               |      |              | 0.00                                                                                                                                                | 0.42                                                                                                   |                                                                                                                                                         | Membrane above pea shingle. (0.15 - 0.16m) |              |
|                                                                                                                                                                                                                                             |                 |                                          |                          |                          |                       |                           |               |      |              |                                                                                                                                                     | (0.51)                                                                                                 |                                                                                                                                                         | MADE GROUND: Loose pea shingle.            |              |
|                                                                                                                                                                                                                                             |                 | 4.50                                     | 4.50                     | PID<br>ES 3              |                       |                           |               |      |              | 0.00                                                                                                                                                | 0.93                                                                                                   |                                                                                                                                                         | Membrane below pea shingle. (0.42 - 0.43m) |              |
|                                                                                                                                                                                                                                             |                 | 5.40                                     | 5.50                     | ES 4<br>PID              |                       |                           |               |      |              | 0.00                                                                                                                                                | (1.57)                                                                                                 | MADE GROUND: Dark brown clayey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded brick, flint and concrete. |                                            |              |
|                                                                                                                                                                                                                                             |                 | 13.45                                    | 2.50                     |                          |                       |                           |               |      |              | Light brown slightly clayey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded. [RIVER TERRACE DEPOSITS] |                                                                                                        |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 | 3.00                                     | (2.00)                   |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 | 4.0                                      |                          |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
|                                                                                                                                                                                                                                             |                 | 4.5                                      | 4.50                     |                          |                       |                           |               |      |              | (1.00)                                                                                                                                              | Very soft to soft brownish mottled grey CLAY with rare flinty occasional gravel. [WITTERING FORMATION] |                                                                                                                                                         |                                            |              |
| 5.0                                                                                                                                                                                                                                         | 10.45           | 5.50                                     | End of Borehole at 5.50m |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |
| Remarks                                                                                                                                                                                                                                     |                 |                                          |                          |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        | Method, Plant, Stability, Dimensions                                                                                                                    |                                            | Logger<br>BH |
| 1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. 4. Groundwater encountered at 3 m bgl. |                 |                                          |                          |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        | 0.00 - 5.50m                                                                                                                                            |                                            |              |
| Checked By: TC    Approved By: TC    Status: FINAL                                                                                                                                                                                          |                 |                                          |                          |                          |                       |                           |               |      |              |                                                                                                                                                     |                                                                                                        |                                                                                                                                                         |                                            |              |

|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------|-------------------------------------------------------------|---------------------------|--------------------|
|                                                                                                                                         | <h1>Open Hole Log</h1> |                                          |                                                             |                           | <h2>BH204</h2>     |
|                                                                                                                                                                                                                        |                        |                                          |                                                             |                           | SUPPLEMENTARY INFO |
|                                                                                                                                                                                                                        | Hole Type<br>RO        | Easting<br>444538.45                     | Northing<br>119656.51                                       | Ground Level (m)<br>15.95 | Scale<br>1:50      |
| Project Name<br>Eastleigh                                                                                                                                                                                              |                        | Project No.<br>309046                    | Start Date<br>2024-02-12                                    | End Date<br>2024-02-12    |                    |
| Client<br>Oxenwood                                                                                                                                                                                                     |                        | Contractor<br>Environmental Sampling Ltd | Consultant                                                  |                           |                    |
| <b>Water Strike - General</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Seal Depth (m)         | Casing Depth (m)                         | Date and Time                                               | Remarks                   |                    |
| 3.00                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <b>Water Strike - Details</b>                                                                                                                                                                                          |                        |                                          |                                                             |                           |                    |
| Struck (m)                                                                                                                                                                                                             | Rose To (m)            | Time (mins)                              | Remarks                                                     |                           |                    |
| 3.00                                                                                                                                                                                                                   |                        |                                          |                                                             |                           |                    |
| <div></div>                                                                                                                                                                                                            |                        |                                          |                                                             |                           |                    |
| <b>Remarks</b><br>1. Logged in general accordance with BS5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2m bgl. 3. Installed with 50mm HDPE pipe. |                        |                                          | <b>Method, Plant, Stability, Dimensions</b><br>0.00 - 5.50m |                           |                    |
| <b>Checked By:</b> TC <b>Approved By:</b> TC <b>Status:</b> FINAL                                                                                                                                                      |                        |                                          | <b>Logger</b><br>BH                                         |                           |                    |



## APPENDIX 3: CHEMICAL TESTING

**Charlie Walker**

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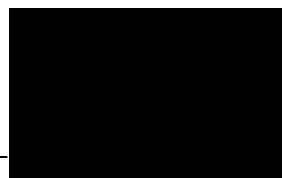
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## **Analytical Report Number : 23-57809**

|                             |                    |                                                        |            |
|-----------------------------|--------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Eastleigh          | <b>Samples received on:</b>                            | 20/09/2023 |
| <b>Your job number:</b>     | 0304872            | <b>Samples instructed on/<br/>Analysis started on:</b> | 20/09/2023 |
| <b>Your order number:</b>   | ENV CW PH2 0304872 | <b>Analysis completed by:</b>                          | 27/09/2023 |
| <b>Report Issue Number:</b> | 1                  | <b>Report issued on:</b>                               | 27/09/2023 |
| <b>Samples Analysed:</b>    | 9 soil samples     |                                                        |            |

**Signed:**



Adam Fenwick  
Technical Reviewer  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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

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Project / Site name: Eastleigh  
Your Order No: ENV CW PH2 0304872

| Lab Sample Number                       |       |                    |                         | 2819420       | 2819421       | 2819422       | 2819423       | 2819424       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | WS107         | WS108         | WS102         | WS103         | WS101         |
| Sample Number                           |       |                    |                         | 1             | 1             | 1             | 1             | 1             |
| Depth (m)                               |       |                    |                         | 0.10          | 0.10          | 0.10          | 1.30          | 0.10          |
| Date Sampled                            |       |                    |                         | 11/09/2023    | 12/09/2023    | 12/09/2023    | 12/09/2023    | 18/09/2023    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         | < 0.1         | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 12            | 15            | 11            | 14            | 16            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.8           | 0.9           | 1.3           | 1.2           | 0.8           |

|                     |      |     |           |              |              |              |              |              |
|---------------------|------|-----|-----------|--------------|--------------|--------------|--------------|--------------|
| Asbestos in Soil    | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected | Not-detected | Not-detected |
| Asbestos Analyst ID | N/A  | N/A | N/A       | DSO          | DSO          | DSO          | DSO          | DSO          |

#### General Inorganics

|                                                                         |          |         |        |       |       |       |      |       |
|-------------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|------|-------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 8.4   | 9.3   | 10.9  | 8.2  | 8.3   |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 600   | 200   | 420   | 680  | 620   |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.302 | 0.102 | 0.211 | 0.34 | 0.308 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 302   | 102   | 211   | 340  | 308   |
| Organic Matter (automated)                                              | %        | 0.1     | MCERTS | 4.1   | 5.3   | 0.8   | 1.1  | 3.7   |
| Total Organic Carbon (TOC) - Automated                                  | %        | 0.1     | MCERTS | 2.4   | 3.1   | 0.5   | 0.6  | 2.1   |

#### Speciated PAHs

|                        |       |      |           |        |        |        |        |        |
|------------------------|-------|------|-----------|--------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.06   | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | 0.23   | 0.24   | 0.07   | < 0.05 | 0.27   |
| Anthracene             | mg/kg | 0.05 | MCERTS    | 0.05   | 0.05   | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 0.55   | 0.56   | 0.18   | 0.06   | 0.6    |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 0.51   | 0.52   | 0.17   | 0.06   | 0.58   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | 0.39   | 0.35   | 0.08   | < 0.05 | 0.35   |
| Chrysene               | mg/kg | 0.05 | MCERTS    | 0.37   | 0.36   | 0.1    | < 0.05 | 0.39   |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.56   | 0.56   | 0.12   | 0.06   | 0.59   |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.21   | 0.19   | < 0.05 | < 0.05 | 0.2    |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | 0.44   | 0.46   | 0.1    | 0.06   | 0.44   |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | 0.27   | 0.26   | 0.06   | < 0.05 | 0.25   |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | 0.07   | 0.08   | < 0.05 | < 0.05 | 0.07   |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | 0.28   | 0.3    | 0.08   | 0.09   | 0.32   |

#### Total PAH

|                             |       |     |           |      |      |      |        |      |
|-----------------------------|-------|-----|-----------|------|------|------|--------|------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | 3.93 | 3.93 | 0.96 | < 0.80 | 4.06 |
|-----------------------------|-------|-----|-----------|------|------|------|--------|------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 5.3   | 6.5   | 5.5   | 8.8   | 4     |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | 0.3   | < 0.2 | < 0.2 | < 0.2 | 0.2   |
| Chromium (hexavalent)             | mg/kg | 1.8 | MCERTS | < 1.8 | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 18    | 13    | 14    | 18    | 7.7   |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 20    | 25    | 14    | 26    | 18    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 42    | 69    | 24    | 25    | 50    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | 0.3   | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 7.2   | 8.3   | 9.1   | 12    | 5.2   |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 74    | 100   | 47    | 76    | 55    |

#### Monoaromatics & Oxygenates

|         |       |   |        |       |       |       |       |       |
|---------|-------|---|--------|-------|-------|-------|-------|-------|
| Benzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

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Project / Site name: Eastleigh  
Your Order No: ENV CW PH2 0304872

|                                         |       |                    |                         |               |               |               |               |               |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Lab Sample Number                       |       |                    |                         | 2819420       | 2819421       | 2819422       | 2819423       | 2819424       |
| Sample Reference                        |       |                    |                         | WS107         | WS108         | WS102         | WS103         | WS101         |
| Sample Number                           |       |                    |                         | 1             | 1             | 1             | 1             | 1             |
| Depth (m)                               |       |                    |                         | 0.10          | 0.10          | 0.10          | 1.30          | 0.10          |
| Date Sampled                            |       |                    |                         | 11/09/2023    | 12/09/2023    | 12/09/2023    | 12/09/2023    | 18/09/2023    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |
| Ethylbenzene                            | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| p & m-xylene                            | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| o-xylene                                | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| MTBE (Methyl Tertiary Butyl Ether)      | µg/kg | 5                  | NONE                    | < 5.0         | < 5.0         | < 5.0         | < 5.0         | < 5.0         |

#### Petroleum Hydrocarbons

|                                                            |       |     |        |        |        |        |        |        |
|------------------------------------------------------------|-------|-----|--------|--------|--------|--------|--------|--------|
| TPH-CWG - Aliphatic >EC5 - EC6 <sub>HS_1D_AL</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC6 - EC8 <sub>HS_1D_AL</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC8 - EC10 <sub>HS_1D_AL</sub>        | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC10 - EC12 <sub>EH_CU_1D_AL</sub>    | mg/kg | 1   | MCERTS | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| TPH-CWG - Aliphatic >EC12 - EC16 <sub>EH_CU_1D_AL</sub>    | mg/kg | 2   | MCERTS | < 2.0  | < 2.0  | < 2.0  | < 2.0  | < 2.0  |
| TPH-CWG - Aliphatic >EC16 - EC21 <sub>EH_CU_1D_AL</sub>    | mg/kg | 8   | MCERTS | < 8.0  | < 8.0  | < 8.0  | < 8.0  | < 8.0  |
| TPH-CWG - Aliphatic >EC21 - EC35 <sub>EH_CU_1D_AL</sub>    | mg/kg | 8   | MCERTS | 11     | 22     | 13     | < 8.0  | < 8.0  |
| TPH-CWG - Aliphatic (EC5 - EC35) <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10  | NONE   | 11     | 22     | 20     | < 10   | < 10   |

|                                                           |       |     |        |        |        |        |        |        |
|-----------------------------------------------------------|-------|-----|--------|--------|--------|--------|--------|--------|
| TPH-CWG - Aromatic >EC5 - EC7 <sub>HS_1D_AR</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC7 - EC8 <sub>HS_1D_AR</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC8 - EC10 <sub>HS_1D_AR</sub>        | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC10 - EC12 <sub>EH_CU_1D_AR</sub>    | mg/kg | 1   | MCERTS | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| TPH-CWG - Aromatic >EC12 - EC16 <sub>EH_CU_1D_AR</sub>    | mg/kg | 2   | MCERTS | < 2.0  | < 2.0  | < 2.0  | < 2.0  | < 2.0  |
| TPH-CWG - Aromatic >EC16 - EC21 <sub>EH_CU_1D_AR</sub>    | mg/kg | 10  | MCERTS | < 10   | < 10   | < 10   | < 10   | < 10   |
| TPH-CWG - Aromatic >EC21 - EC35 <sub>EH_CU_1D_AR</sub>    | mg/kg | 10  | MCERTS | 15     | 20     | 12     | < 10   | 14     |
| TPH-CWG - Aromatic (EC5 - EC35) <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10  | NONE   | 16     | 22     | 14     | < 10   | 15     |

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

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Your Order No: ENV CW PH2 0304872

| Lab Sample Number                       |       |                    |                         | 2819425       | 2819426       | 2819427       | 2819428       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | WS101         | WS104         | WS110         | WS111         |
| Sample Number                           |       |                    |                         | 2             | 1             | 1             | 2             |
| Depth (m)                               |       |                    |                         | 0.50          | 0.10          | 0.10          | 0.60          |
| Date Sampled                            |       |                    |                         | 18/09/2023    | 15/09/2023    | 15/09/2023    | 18/09/2023    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 12            | 7             | 12            | 5.5           |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.7           | 0.8           | 0.7           | 0.8           |

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

#### General Inorganics

|                                                                         |          |         |        |       |       |       |       |
|-------------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|-------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 11.4  | 11.1  | 9.2   | 8.7   |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 480   | 430   | 250   | 240   |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.241 | 0.213 | 0.124 | 0.121 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 241   | 213   | 124   | 121   |
| Organic Matter (automated)                                              | %        | 0.1     | MCERTS | 1     | 1.5   | 5.1   | 0.7   |
| Total Organic Carbon (TOC) - Automated                                  | %        | 0.1     | MCERTS | 0.6   | 0.9   | 2.9   | 0.4   |

#### Speciated PAHs

|                        |       |      |           |        |        |        |        |
|------------------------|-------|------|-----------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | 0.12   | < 0.05 | 0.19   | 0.1    |
| Anthracene             | mg/kg | 0.05 | MCERTS    | 0.05   | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 0.38   | 0.06   | 0.51   | 0.25   |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 0.39   | 0.07   | 0.48   | 0.26   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | 0.27   | < 0.05 | 0.36   | 0.17   |
| Chrysene               | mg/kg | 0.05 | MCERTS    | 0.25   | 0.05   | 0.35   | 0.18   |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.33   | 0.08   | 0.6    | 0.26   |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.11   | < 0.05 | 0.17   | 0.08   |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | 0.29   | 0.06   | 0.46   | 0.18   |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | 0.15   | < 0.05 | 0.27   | 0.12   |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | 0.08   | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | 0.18   | 0.05   | 0.3    | 0.11   |

#### Total PAH

|                             |       |     |           |      |        |      |      |
|-----------------------------|-------|-----|-----------|------|--------|------|------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | 2.52 | < 0.80 | 3.77 | 1.71 |
|-----------------------------|-------|-----|-----------|------|--------|------|------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 6.2   | 10    | 6.7   | 24    |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 | 1.5   |
| Chromium (hexavalent)             | mg/kg | 1.8 | MCERTS | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 19    | 20    | 13    | 13    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 19    | 19    | 25    | 39    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 53    | 260   | 79    | 45    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 9.8   | 8.9   | 8.3   | 16    |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 80    | 56    | 100   | 270   |

#### Monoaromatics & Oxygenates

|         |       |   |        |       |       |       |       |
|---------|-------|---|--------|-------|-------|-------|-------|
| Benzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

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Project / Site name: Eastleigh  
Your Order No: ENV CW PH2 0304872

|                                         |       |                    |                         |               |               |               |               |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|
| Lab Sample Number                       |       |                    |                         | 2819425       | 2819426       | 2819427       | 2819428       |
| Sample Reference                        |       |                    |                         | WS101         | WS104         | WS110         | WS111         |
| Sample Number                           |       |                    |                         | 2             | 1             | 1             | 2             |
| Depth (m)                               |       |                    |                         | 0.50          | 0.10          | 0.10          | 0.60          |
| Date Sampled                            |       |                    |                         | 18/09/2023    | 15/09/2023    | 15/09/2023    | 18/09/2023    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |
| Ethylbenzene                            | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| p & m-xylene                            | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| o-xylene                                | µg/kg | 5                  | MCERTS                  | < 5.0         | < 5.0         | < 5.0         | < 5.0         |
| MTBE (Methyl Tertiary Butyl Ether)      | µg/kg | 5                  | NONE                    | < 5.0         | < 5.0         | < 5.0         | < 5.0         |

#### Petroleum Hydrocarbons

|                                                            |       |     |        |        |        |        |        |
|------------------------------------------------------------|-------|-----|--------|--------|--------|--------|--------|
| TPH-CWG - Aliphatic >EC5 - EC6 <sub>HS_1D_AL</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC6 - EC8 <sub>HS_1D_AL</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC8 - EC10 <sub>HS_1D_AL</sub>        | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aliphatic >EC10 - EC12 <sub>EH_CU_1D_AL</sub>    | mg/kg | 1   | MCERTS | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| TPH-CWG - Aliphatic >EC12 - EC16 <sub>EH_CU_1D_AL</sub>    | mg/kg | 2   | MCERTS | 2.1    | 8.3    | < 2.0  | < 2.0  |
| TPH-CWG - Aliphatic >EC16 - EC21 <sub>EH_CU_1D_AL</sub>    | mg/kg | 8   | MCERTS | 18     | 18     | < 8.0  | < 8.0  |
| TPH-CWG - Aliphatic >EC21 - EC35 <sub>EH_CU_1D_AL</sub>    | mg/kg | 8   | MCERTS | 53     | 70     | < 8.0  | < 8.0  |
| TPH-CWG - Aliphatic (EC5 - EC35) <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10  | NONE   | 73     | 96     | < 10   | < 10   |

|                                                           |       |     |        |        |        |        |        |
|-----------------------------------------------------------|-------|-----|--------|--------|--------|--------|--------|
| TPH-CWG - Aromatic >EC5 - EC7 <sub>HS_1D_AR</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC7 - EC8 <sub>HS_1D_AR</sub>         | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC8 - EC10 <sub>HS_1D_AR</sub>        | mg/kg | 0.1 | NONE   | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| TPH-CWG - Aromatic >EC10 - EC12 <sub>EH_CU_1D_AR</sub>    | mg/kg | 1   | MCERTS | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| TPH-CWG - Aromatic >EC12 - EC16 <sub>EH_CU_1D_AR</sub>    | mg/kg | 2   | MCERTS | < 2.0  | < 2.0  | 3.5    | < 2.0  |
| TPH-CWG - Aromatic >EC16 - EC21 <sub>EH_CU_1D_AR</sub>    | mg/kg | 10  | MCERTS | < 10   | < 10   | < 10   | < 10   |
| TPH-CWG - Aromatic >EC21 - EC35 <sub>EH_CU_1D_AR</sub>    | mg/kg | 10  | MCERTS | < 10   | 16     | 17     | < 10   |
| TPH-CWG - Aromatic (EC5 - EC35) <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10  | NONE   | 12     | 16     | 25     | < 10   |

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

**Analytical Report Number : 23-57809**
**Project / Site name: Eastleigh**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *                              |
|-------------------|------------------|---------------|-----------|---------------------------------------------------|
| 2819420           | WS107            | 1             | 0.1       | Brown loam and sand with gravel.                  |
| 2819421           | WS108            | 1             | 0.1       | Brown loam and sand with gravel.                  |
| 2819422           | WS102            | 1             | 0.1       | Light brown clay and sand with gravel.            |
| 2819423           | WS103            | 1             | 1.3       | Brown clay and sand with gravel.                  |
| 2819424           | WS101            | 1             | 0.1       | Brown loam and clay with gravel.                  |
| 2819425           | WS101            | 2             | 0.5       | Brown clay and sand with concrete and brick.      |
| 2819426           | WS104            | 1             | 0.1       | Ligt brown clay and sand with concrete and gravel |
| 2819427           | WS110            | 1             | 0.1       | Brown loam and clay with gravel.                  |
| 2819428           | WS111            | 2             | 0.6       | Brown gravelly clay.                              |

**Analytical Report Number : 23-57809**

**Project / Site name: Eastleigh**

**Water matrix abbreviations:**

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

| Analytical Test Name                               | Analytical Method Description                                                                                                                                                                           | Analytical Method Reference                                                          | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Sulphate, water soluble, in soil (16hr extraction) | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).                                               | In house method.                                                                     | L038-PL       | D                  | MCERTS               |
| Metals in soil by ICP-OES                          | Determination of metals in soil by aqua-regia digestion followed by ICP-OES.                                                                                                                            | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil. | L038-PL       | D                  | MCERTS               |
| Asbestos identification in soil                    | Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.                                                                                  | In house method based on HSG 248                                                     | A001-PL       | D                  | ISO 17025            |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                                                                   | In house method.                                                                     | L019-UK/PL    | W                  | NONE                 |
| Speciated EPA-16 PAHs in soil                      | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation. | In-house method based on USEPA 8270                                                  | L064-PL       | D                  | MCERTS               |
| pH in soil (automated)                             | Determination of pH in soil by addition of water followed by automated electrometric measurement.                                                                                                       | In house method.                                                                     | L099-PL       | D                  | MCERTS               |
| Stones content of soil                             | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.                                                                             | In-house method based on British Standard Methods and MCERTS requirements.           | L019-UK/PL    | D                  | NONE                 |
| Total organic carbon (Automated) in soil           | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.                                                                           | In house method.                                                                     | L009-PL       | D                  | MCERTS               |
| BTEX and MTBE in soil (Monoaromatics)              | Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited                                                                                                               | In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation  | L073B-PL      | W                  | MCERTS               |
| TPH Chromatogram in Soil                           | TPH Chromatogram in Soil.                                                                                                                                                                               | In-house method                                                                      | L064-PL       | D                  | NONE                 |
| TPHCWG (Soil)                                      | Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.                                                                                 | In-house method with silica gel split/clean up.                                      | L088/76-PL    | D                  | MCERTS               |
| Organic matter (Automated) in soil                 | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.                                                                           | In house method.                                                                     | L009-PL       | D                  | MCERTS               |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.                                                                       | In-house method                                                                      | L080-PL       | W                  | MCERTS               |
| Sulphate, water soluble, in soil                   | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).                                               | In house method.                                                                     | L038-PL       | D                  | MCERTS               |

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

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

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

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

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

Analytical Report Number : 23-57809

Project / Site name: Eastleigh

Water matrix abbreviations:

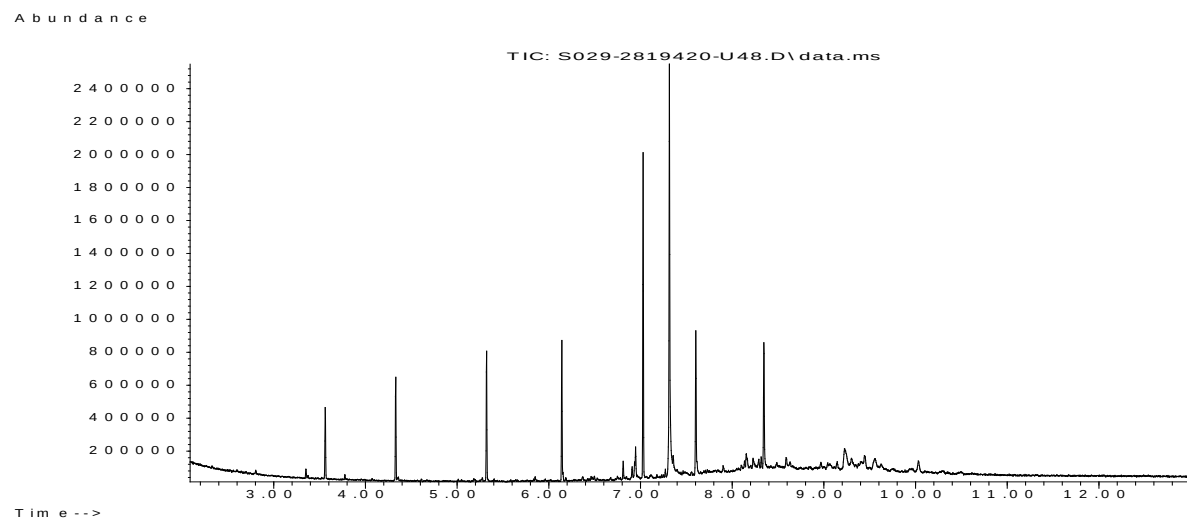
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

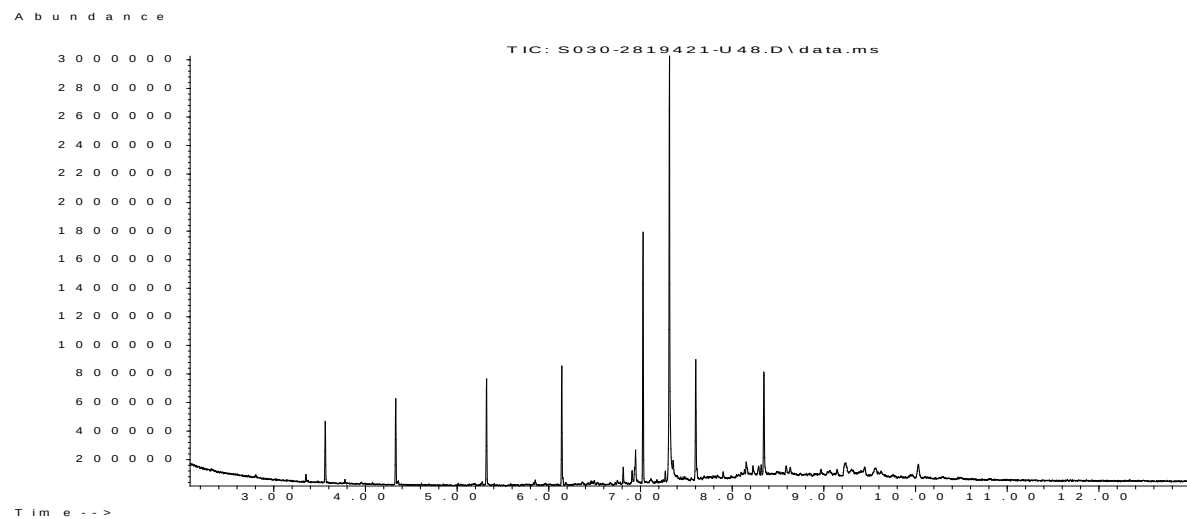
| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|

### Information in Support of Analytical Results

#### List of HWOL Acronyms and Operators

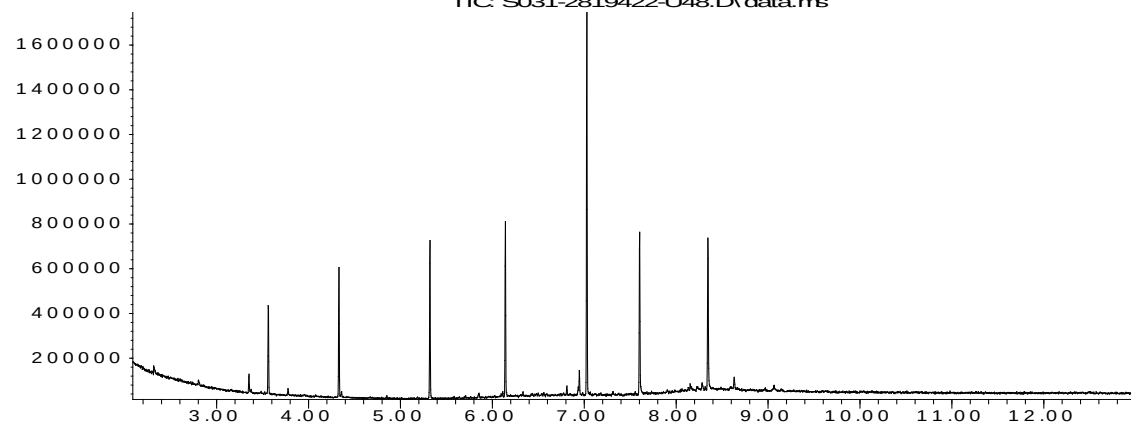
| Acronym | Descriptions                                                           |
|---------|------------------------------------------------------------------------|
| HS      | Headspace Analysis                                                     |
| MS      | Mass spectrometry                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



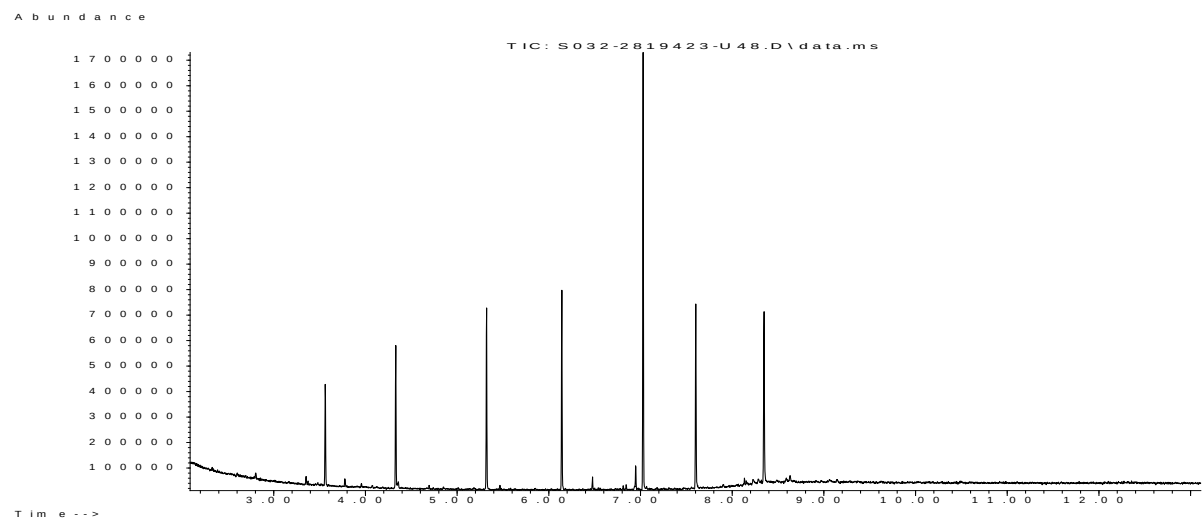


Abundance

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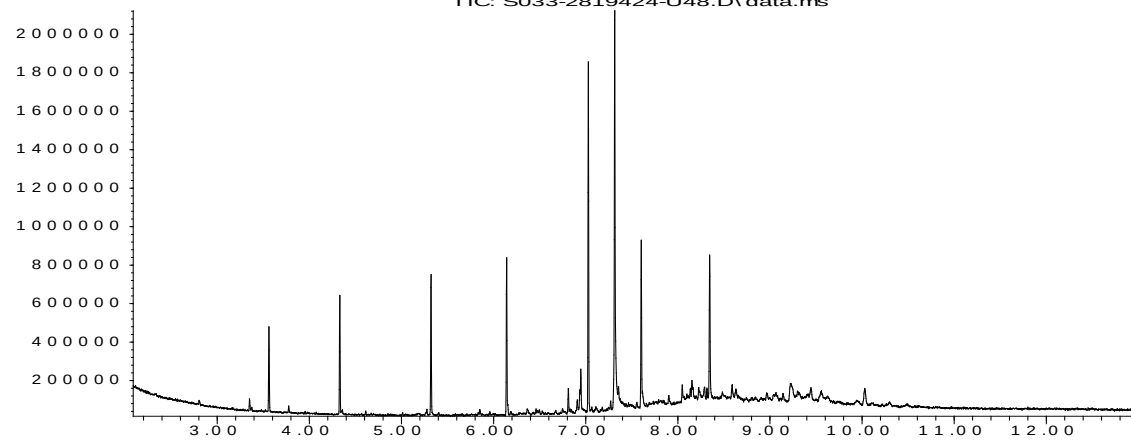


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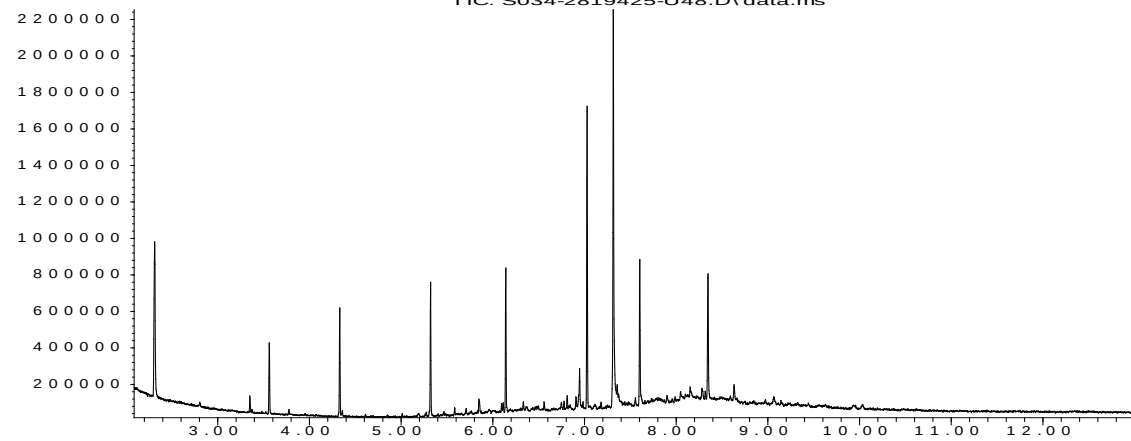
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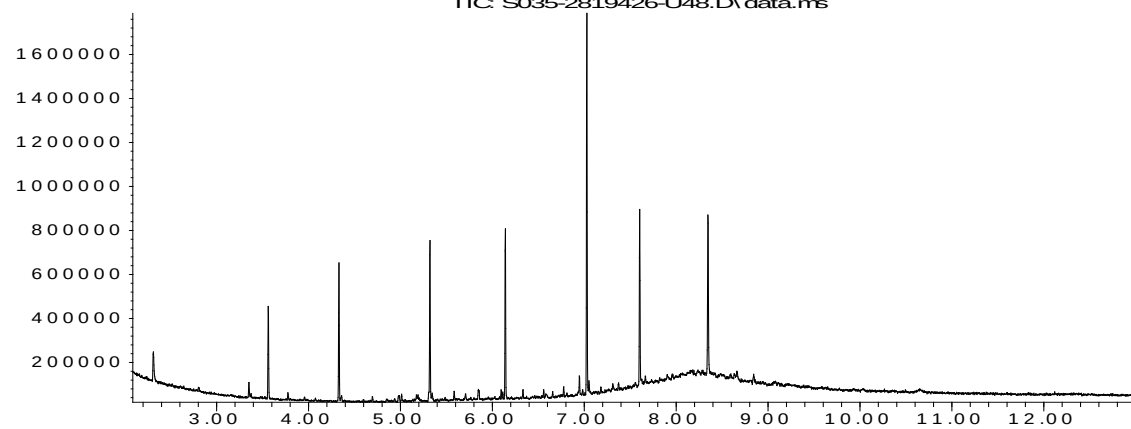
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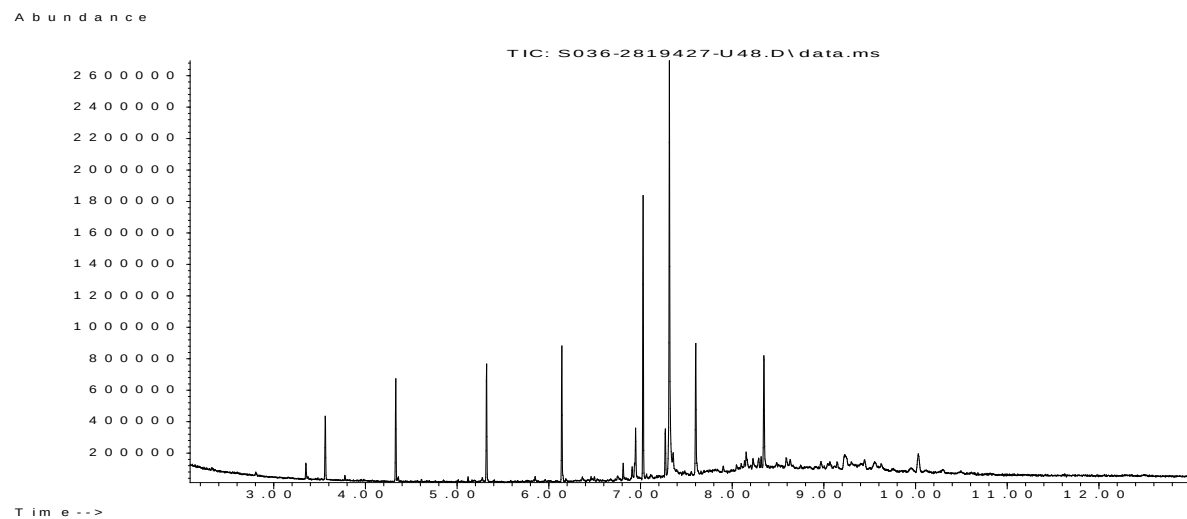
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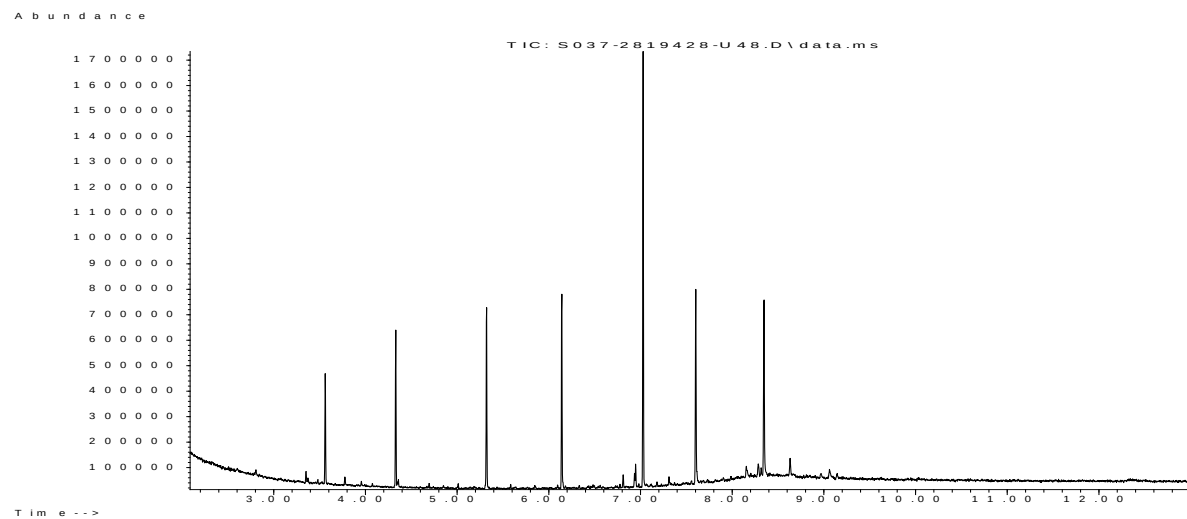
Abundance

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Time-->







4041

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## **Analytical Report Number : 23-63662**

|                             |                    |                                                        |            |
|-----------------------------|--------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Eastleigh          | <b>Samples received on:</b>                            | 17/10/2023 |
| <b>Your job number:</b>     | 0304872            | <b>Samples instructed on/<br/>Analysis started on:</b> | 19/10/2023 |
| <b>Your order number:</b>   | ENV-CW-PH2-0304872 | <b>Analysis completed by:</b>                          | 26/10/2023 |
| <b>Report Issue Number:</b> | 1                  | <b>Report issued on:</b>                               | 26/10/2023 |
| <b>Samples Analysed:</b>    | 4 water samples    |                                                        |            |

**Signed:**

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

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

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

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

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

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

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



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Environmental Science

Analytical Report Number: 23-63662

Project / Site name: Eastleigh

Your Order No: ENV-CW-PH2-0304872

|                                          |               |                    |                      |               |
|------------------------------------------|---------------|--------------------|----------------------|---------------|
| Lab Sample Number                        | 2851259       | 2851260            | 2851261              | 2851262       |
| Sample Reference                         | WS103         | WS106              | WS107                | WS110         |
| Sample Number                            | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Depth (m)                                | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Date Sampled                             | 16/10/2023    | 16/10/2023         | 16/10/2023           | 16/10/2023    |
| Time Taken                               | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Analytical Parameter<br>(Water Analysis) | Units         | Limit of detection | Accreditation Status |               |

## General Inorganics

|                 |          |       |           |        |     |     |        |
|-----------------|----------|-------|-----------|--------|-----|-----|--------|
| pH (L099)       | pH Units | N/A   | ISO 17025 | 7.1    | 7.4 | 7.4 | 7.5    |
| Sulphate as SO4 | mg/l     | 0.045 | ISO 17025 | U/S ** | 300 | 134 | U/S ** |

## Speciated PAHs

|                        |      |      |           |        |        |        |        |
|------------------------|------|------|-----------|--------|--------|--------|--------|
| Naphthalene            | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Acenaphthylene         | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | 1.68   |
| Acenaphthene           | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | 4.44   |
| Fluorene               | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | 17.6   |
| Phenanthrene           | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | 13.4   |
| Anthracene             | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Fluoranthene           | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Pyrene                 | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | 3.86   |
| Benzo(a)anthracene     | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Chrysene               | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(b)fluoranthene   | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(k)fluoranthene   | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(a)pyrene         | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Indeno(1,2,3-cd)pyrene | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Dibenz(a,h)anthracene  | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(ghi)perylene     | µg/l | 0.01 | ISO 17025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |

## Total PAH

|                   |      |      |           |        |        |        |    |
|-------------------|------|------|-----------|--------|--------|--------|----|
| Total EPA-16 PAHs | µg/l | 0.16 | ISO 17025 | < 0.16 | < 0.16 | < 0.16 | 41 |
|-------------------|------|------|-----------|--------|--------|--------|----|

## Heavy Metals / Metalloids

|                       |      |   |           |       |       |       |       |
|-----------------------|------|---|-----------|-------|-------|-------|-------|
| Chromium (hexavalent) | µg/l | 5 | ISO 17025 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
|-----------------------|------|---|-----------|-------|-------|-------|-------|

|                      |      |      |           |        |        |        |        |
|----------------------|------|------|-----------|--------|--------|--------|--------|
| Arsenic (dissolved)  | µg/l | 0.15 | ISO 17025 | U/S ** | 4.33   | 0.76   | U/S ** |
| Cadmium (dissolved)  | µg/l | 0.02 | ISO 17025 | U/S ** | < 0.02 | 0.05   | U/S ** |
| Chromium (dissolved) | µg/l | 0.2  | ISO 17025 | U/S ** | 0.5    | 0.8    | U/S ** |
| Copper (dissolved)   | µg/l | 0.5  | ISO 17025 | U/S ** | 0.8    | 1.7    | U/S ** |
| Lead (dissolved)     | µg/l | 0.2  | ISO 17025 | U/S ** | < 0.2  | 0.5    | U/S ** |
| Mercury (dissolved)  | µg/l | 0.05 | ISO 17025 | U/S ** | < 0.05 | < 0.05 | U/S ** |
| Nickel (dissolved)   | µg/l | 0.5  | ISO 17025 | U/S ** | 4      | 3.2    | U/S ** |
| Selenium (dissolved) | µg/l | 0.6  | ISO 17025 | U/S ** | 2.1    | 3.3    | U/S ** |
| Zinc (dissolved)     | µg/l | 0.5  | ISO 17025 | U/S ** | 5.7    | 9      | U/S ** |

## Monoaromatics &amp; Oxygenates

|                                    |      |   |           |       |       |       |       |
|------------------------------------|------|---|-----------|-------|-------|-------|-------|
| Benzene                            | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| Toluene                            | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| Ethylbenzene                       | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| p & m-xylene                       | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| o-xylene                           | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| MTBE (Methyl Tertiary Butyl Ether) | µg/l | 3 | ISO 17025 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |

## Petroleum Hydrocarbons

|                                                  |      |    |      |       |       |       |       |
|--------------------------------------------------|------|----|------|-------|-------|-------|-------|
| TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL            | µg/l | 1  | NONE | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL            | µg/l | 1  | NONE | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL           | µg/l | 1  | NONE | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS | µg/l | 10 | NONE | < 10  | < 10  | < 10  | 1700  |



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Analytical Report Number: 23-63662

Project / Site name: Eastleigh

Your Order No: ENV-CW-PH2-0304872

|                                                                |       |                    |                         |               |               |               |               |
|----------------------------------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|
| Lab Sample Number                                              |       |                    |                         | 2851259       | 2851260       | 2851261       | 2851262       |
| Sample Reference                                               |       |                    |                         | WS103         | WS106         | WS107         | WS110         |
| Sample Number                                                  |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Depth (m)                                                      |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Date Sampled                                                   |       |                    |                         | 16/10/2023    | 16/10/2023    | 16/10/2023    | 16/10/2023    |
| Time Taken                                                     |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Water Analysis)                       | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |
| TPH-CWG - Aliphatic >C12 - C16 <sub>EH_1D_AL_#1_#2_MS</sub>    | µg/l  | 10                 | NONE                    | < 10          | 27            | < 10          | 9900          |
| TPH-CWG - Aliphatic >C16 - C21 <sub>EH_1D_AL_#1_#2_MS</sub>    | µg/l  | 10                 | NONE                    | < 10          | 23            | < 10          | 11000         |
| TPH-CWG - Aliphatic >C21 - C35 <sub>EH_1D_AL_#1_#2_MS</sub>    | µg/l  | 10                 | NONE                    | < 10          | 490           | < 10          | 5100          |
| TPH-CWG - Aliphatic (C5 - C35) <sub>HS+EH_1D_AL_#1_#2_MS</sub> | µg/l  | 10                 | NONE                    | < 10          | 540           | < 10          | 27000         |

|                                                               |      |    |           |       |       |       |       |
|---------------------------------------------------------------|------|----|-----------|-------|-------|-------|-------|
| TPH-CWG - Aromatic >C5 - C7 <sub>HS_1D_AR</sub>               | µg/l | 1  | ISO 17025 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aromatic >C7 - C8 <sub>HS_1D_AR</sub>               | µg/l | 1  | ISO 17025 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aromatic >C8 - C10 <sub>HS_1D_AR</sub>              | µg/l | 1  | ISO 17025 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH-CWG - Aromatic >C10 - C12 <sub>EH_1D_AR_#1_#2_MS</sub>    | µg/l | 10 | NONE      | < 10  | < 10  | < 10  | 780   |
| TPH-CWG - Aromatic >C12 - C16 <sub>EH_1D_AR_#1_#2_MS</sub>    | µg/l | 10 | NONE      | < 10  | < 10  | < 10  | 5900  |
| TPH-CWG - Aromatic >C16 - C21 <sub>EH_1D_AR_#1_#2_MS</sub>    | µg/l | 10 | NONE      | < 10  | < 10  | < 10  | 4600  |
| TPH-CWG - Aromatic >C21 - C35 <sub>EH_1D_AR_#1_#2_MS</sub>    | µg/l | 10 | NONE      | < 10  | < 10  | < 10  | 580   |
| TPH-CWG - Aromatic (C5 - C35) <sub>HS+EH_1D_AR_#1_#2_MS</sub> | µg/l | 10 | NONE      | < 10  | < 10  | < 10  | 12000 |

U/S = Unsuitable Sample I/S = Insufficient Sample



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Environmental Science

Analytical Report Number : 23-63662

Project / Site name: Eastleigh

Water matrix abbreviations:

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

| Analytical Test Name                   | Analytical Method Description                                                                                                                                              | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Metals in water by ICP-MS (dissolved)  | Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.                                  | In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS. | L012-PL       | W                  | ISO 17025            |
| Hexavalent chromium in water           | Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.                                                 | In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.                                    | L080-PL       | W                  | ISO 17025            |
| Speciated EPA-16 PAHs in water         | Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW | In-house method based on USEPA 8270                                                                             | L102B-PL      | W                  | ISO 17025            |
| Sulphate in water                      | Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.                                                  | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L039-PL       | W                  | ISO 17025            |
| TPHCWG (Waters)                        | Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.                                                                 | In-house method                                                                                                 | L070-PL       | W                  | ISO 17025            |
| BTEX and MTBE in water (Monoaromatics) | Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW                                                                                  | In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation                             | L073B-PL      | W                  | ISO 17025            |
| TPH Chromatogram in Water              | TPH Chromatogram in Water.                                                                                                                                                 | In-house method                                                                                                 | L070-PL       | W                  | NONE                 |
| pH at 20oC in water (automated)        | Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW                                                                                   | In house method.                                                                                                | L099-PL       | W                  | ISO 17025            |

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

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

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

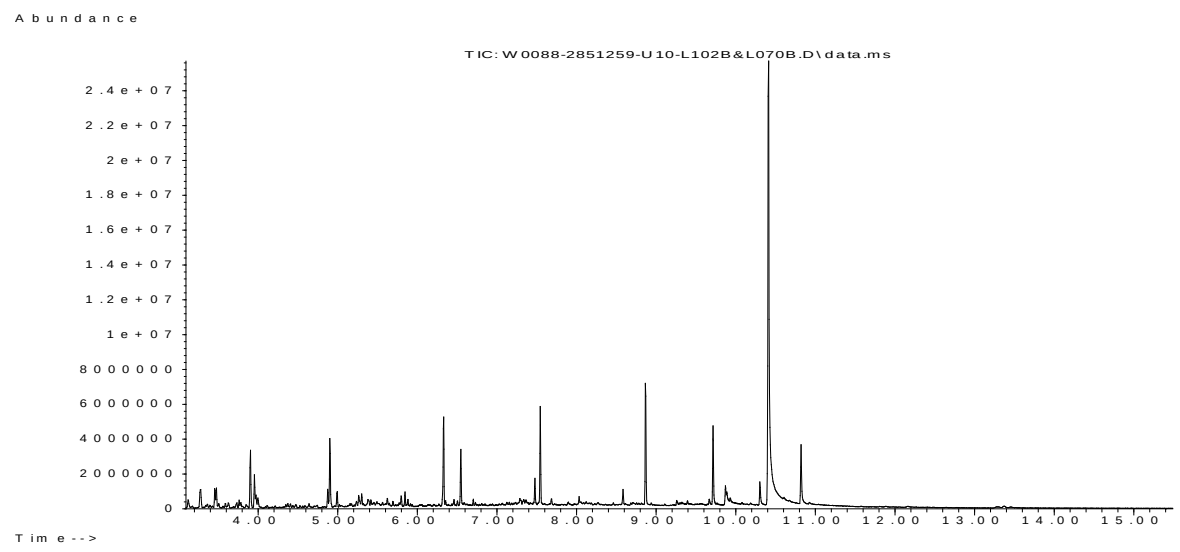
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

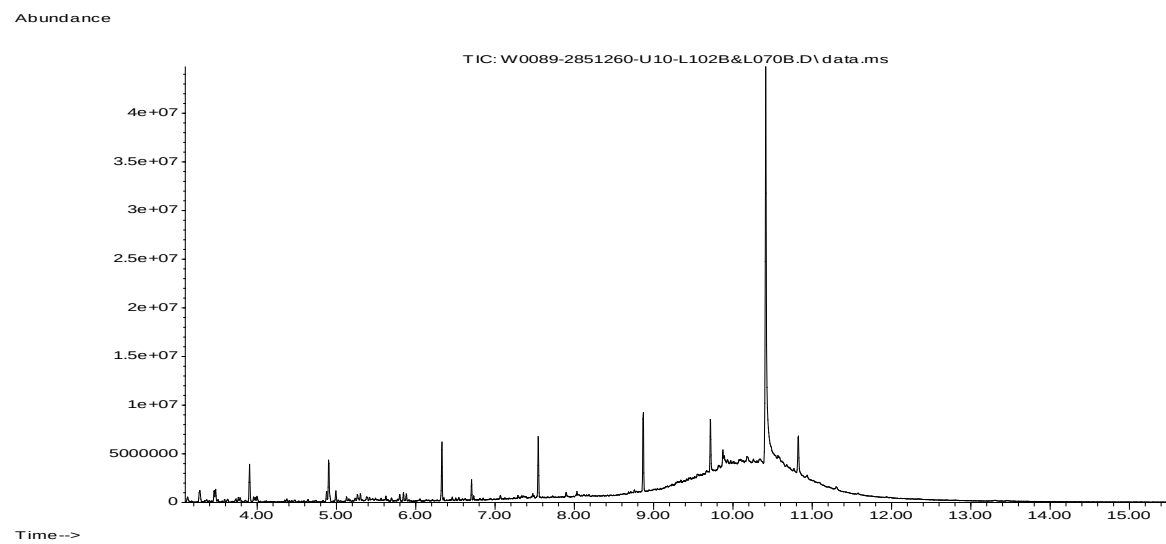
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

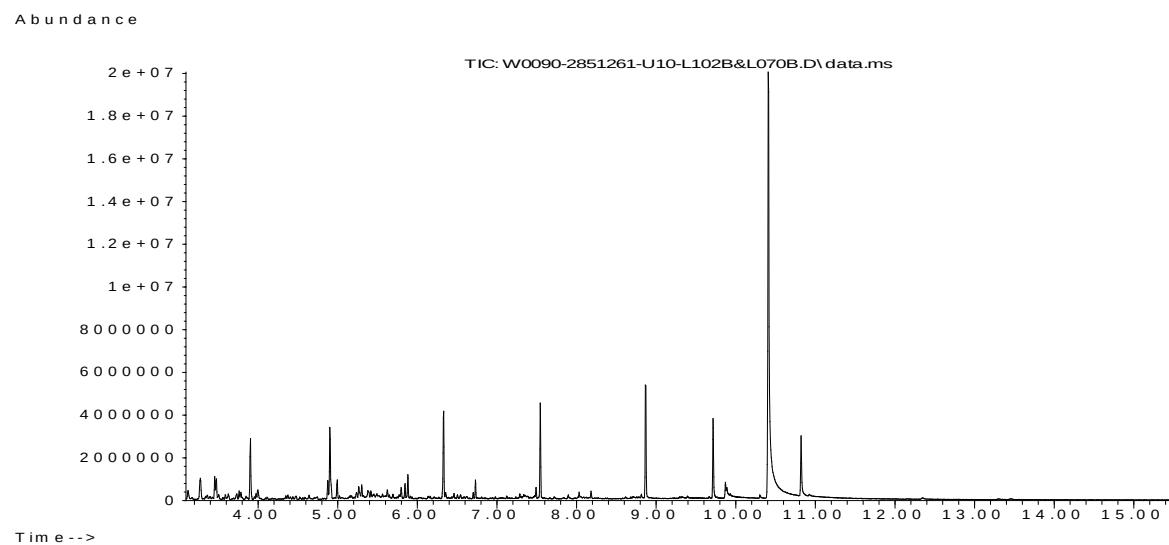
## Information in Support of Analytical Results

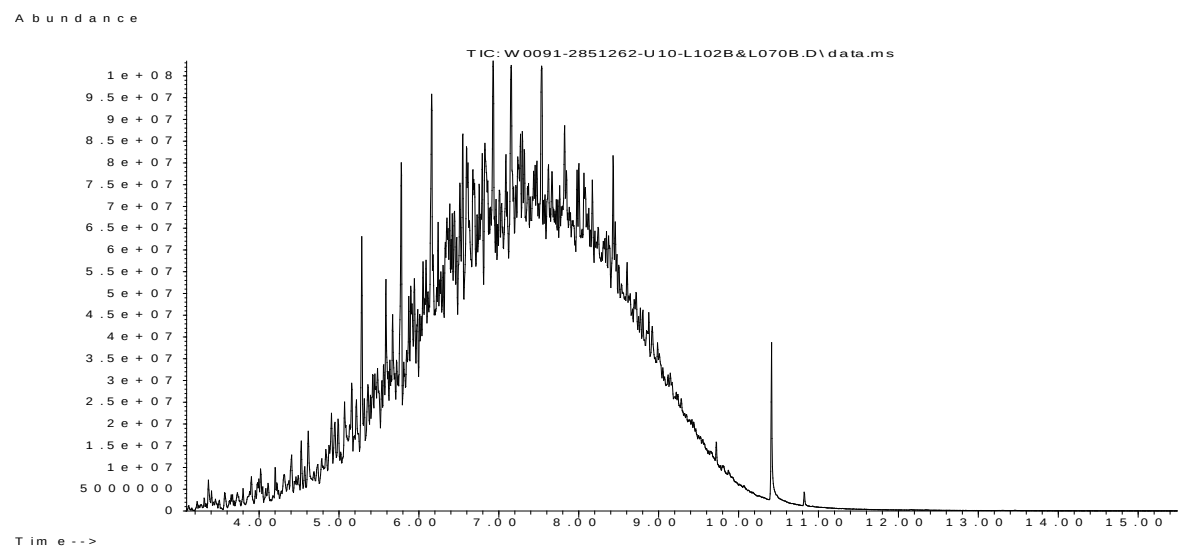
### List of HWOL Acronyms and Operators

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









## Sample Deviation Report



**Analytical Report Number : 23-63662**

**Project / Site name: Eastleigh**

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

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

| Sample ID | Other ID      | Sample Type | Lab Sample Number | Sample Deviation | Test Name                       | Test Ref | Test Deviation |
|-----------|---------------|-------------|-------------------|------------------|---------------------------------|----------|----------------|
| WS103     | None Supplied | W           | 2851259           | c                | pH at 20oC in water (automated) | L099-PL  | c              |
| WS106     | None Supplied | W           | 2851260           | c                | pH at 20oC in water (automated) | L099-PL  | c              |
| WS107     | None Supplied | W           | 2851261           | c                | pH at 20oC in water (automated) | L099-PL  | c              |
| WS110     | None Supplied | W           | 2851262           | c                | pH at 20oC in water (automated) | L099-PL  | c              |

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## **Analytical Report Number : 24-003229**

|                             |                    |                                                        |            |
|-----------------------------|--------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Eastleigh          | <b>Samples received on:</b>                            | 13/02/2024 |
| <b>Your job number:</b>     | 0309406 EASTLEIGH  | <b>Samples instructed on/<br/>Analysis started on:</b> | 14/02/2024 |
| <b>Your order number:</b>   | ENV BH PH2 0309406 | <b>Analysis completed by:</b>                          | 22/02/2024 |
| <b>Report Issue Number:</b> | 1                  | <b>Report issued on:</b>                               | 23/02/2024 |
| <b>Samples Analysed:</b>    | 5 soil samples     |                                                        |            |

**Signed:**

Joanna Wawrzeczko  
Senior Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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

Analytical Report Number: 24-003229  
Project / Site name: Eastleigh  
Your Order No: ENV BH PH2 0309406

| Lab Sample Number                       |       |                    |                         | 118094        | 118095        | 118096        | 118097        | 118098        |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | BH201         | BH202         | BH202         | BH203         | BH204         |
| Sample Number                           |       |                    |                         | 2             | 2             | 3             | 2             | 1             |
| Depth (m)                               |       |                    |                         | 2.10          | 2.20          | 2.50          | 3.50          | 2.00          |
| Date Sampled                            |       |                    |                         | 12/02/2024    | 13/02/2024    | 13/02/2024    | 13/02/2024    | 12/02/2024    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |

|                               |    |      |      |      |       |       |      |      |
|-------------------------------|----|------|------|------|-------|-------|------|------|
| Stone Content                 | %  | 0.1  | NONE | 36.4 | < 0.1 | < 0.1 | 48.8 | 57.4 |
| Moisture Content              | %  | 0.01 | NONE | 9.6  | 14    | 17    | 14   | 5.7  |
| Total mass of sample received | kg | 0.1  | NONE | 0.8  | 0.8   | 0.8   | 0.8  | 0.8  |

#### Asbestos

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

#### General Inorganics

|                                                                         |          |      |        |     |     |     |     |     |
|-------------------------------------------------------------------------|----------|------|--------|-----|-----|-----|-----|-----|
| pH (L099)                                                               | pH Units | N/A  | MCERTS | 7.9 | 9.1 | 7.5 | 7.8 | 7.9 |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5  | MCERTS | 270 | 360 | 200 | 260 | 470 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25 | MCERTS | 133 | 179 | 102 | 131 | 233 |
| Organic Matter (automated)                                              | %        | 0.1  | MCERTS | 0.8 | 2.7 | 1.1 | 0.9 | 0.7 |
| Total Organic Carbon (TOC) - Automated                                  | %        | 0.1  | MCERTS | 0.4 | 1.6 | 0.6 | 0.5 | 0.4 |

#### Speciated PAHs

|                        |       |      |           |        |        |        |        |        |
|------------------------|-------|------|-----------|--------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | 0.39   | < 0.05 | < 0.05 | < 0.05 | 0.19   |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.1    |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.12   | 0.67   | < 0.05 | 0.11   |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.74   | 0.65   | < 0.05 | 0.95   |
| Anthracene             | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.2    | < 0.05 | < 0.05 | 0.27   |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | 1.2    | < 0.05 | < 0.05 | 1.8    |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | < 0.05 | 1.1    | < 0.05 | < 0.05 | 1.5    |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.49   | < 0.05 | < 0.05 | 0.82   |
| Chrysene               | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.51   | < 0.05 | < 0.05 | 0.75   |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 | 0.5    | < 0.05 | < 0.05 | 0.85   |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 | 0.32   | < 0.05 | < 0.05 | 0.4    |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.45   | < 0.05 | < 0.05 | 0.75   |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.25   | < 0.05 | < 0.05 | 0.38   |
| Dibenzo(a,h)anthracene | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.11   |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.29   | < 0.05 | < 0.05 | 0.44   |

#### Total PAH

|                             |       |     |           |        |      |      |        |      |
|-----------------------------|-------|-----|-----------|--------|------|------|--------|------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | < 0.80 | 6.14 | 1.32 | < 0.80 | 9.35 |
|-----------------------------|-------|-----|-----------|--------|------|------|--------|------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 8.3   | 7.7   | 8.1   | 8.3   | 8.7   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | 0.3   | 0.7   | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 1.8 | MCERTS | < 1.8 | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 200   | 98    | 210   | 270   | 430   |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 8.3   | 15    | 15    | 12    | 11    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 14    | 32    | 16    | 11    | 17    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 20    | 19    | 49    | 23    | 16    |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 37    | 66    | 69    | 48    | 38    |

Analytical Report Number: 24-003229  
 Project / Site name: Eastleigh  
 Your Order No: ENV BH PH2 0309406

| Lab Sample Number                       |       |                    |                         | 118094        | 118095        | 118096        | 118097        | 118098        |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | BH201         | BH202         | BH202         | BH203         | BH204         |
| Sample Number                           |       |                    |                         | 2             | 2             | 3             | 2             | 1             |
| Depth (m)                               |       |                    |                         | 2.10          | 2.20          | 2.50          | 3.50          | 2.00          |
| Date Sampled                            |       |                    |                         | 12/02/2024    | 13/02/2024    | 13/02/2024    | 13/02/2024    | 12/02/2024    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |

#### Petroleum Hydrocarbons

|                                                   |       |      |        |         |         |         |         |         |
|---------------------------------------------------|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aliphatic >C5 - C6 HS_1D_AL              | mg/kg | 0.02 | NONE   | < 0.020 | < 0.020 | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C6 - C8 HS_1D_AL              | mg/kg | 0.02 | NONE   | < 0.020 | < 0.020 | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C8 - C10 HS_1D_AL             | mg/kg | 0.05 | NONE   | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL_#1_#2   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   | 7.7     | < 1.0   | < 1.0   |
| TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL_#1_#2   | mg/kg | 2    | MCERTS | < 2.0   | < 2.0   | 140     | < 2.0   | < 2.0   |
| TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL_#1_#2   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   | 200     | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL_#1_#2   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   | 50      | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL_#1_#2 | mg/kg | 10   | NONE   | < 10    | < 10    | 400     | < 10    | < 10    |

|                                                    |       |      |        |         |         |         |         |         |
|----------------------------------------------------|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR              | mg/kg | 0.01 | NONE   | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR              | mg/kg | 0.01 | NONE   | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR             | mg/kg | 0.05 | NONE   | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR_#1_#2   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   | 1.3     | < 1.0   | < 1.0   |
| TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR_#1_#2   | mg/kg | 2    | MCERTS | < 2.0   | 2.4     | 99      | < 2.0   | < 2.0   |
| TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR_#1_#2   | mg/kg | 10   | MCERTS | < 10    | < 10    | 160     | < 10    | < 10    |
| TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR_#1_#2   | mg/kg | 10   | MCERTS | < 10    | < 10    | 29      | < 10    | < 10    |
| TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR_#1_#2 | mg/kg | 10   | NONE   | < 10    | < 10    | 290     | < 10    | < 10    |

#### VOCs

|                                    |       |   |        |       |       |       |       |       |
|------------------------------------|-------|---|--------|-------|-------|-------|-------|-------|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | NONE   | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Benzene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Ethylbenzene                       | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| p & m-Xylene                       | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| o-Xylene                           | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

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

**Analytical Report Number : 24-003229**

**Project / Site name: Eastleigh**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *                       |
|-------------------|------------------|---------------|-----------|--------------------------------------------|
| 118094            | BH201            | 2             | 2.1       | Brown clay and sand with gravel and chalk  |
| 118095            | BH202            | 2             | 2.2       | Brown clay and sand with gravel            |
| 118096            | BH202            | 3             | 2.5       | Brown clay and sand with gravel            |
| 118097            | BH203            | 2             | 3.5       | Brown clay and sand with gravel and stones |
| 118098            | BH204            | 1             | 2         | Brown loam and clay with gravel and stones |

**Analytical Report Number : 24-003229**

**Project / Site name: Eastleigh**

**Water matrix abbreviations:**

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

| Analytical Test Name                                                        | Analytical Method Description                                                                                                                       | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Asbestos identification in Soil                                             | Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques                               | In-house method based on HSG 248, 2021                                              | A001B         | D                  | ISO 17025            |
| Organic matter (Automated) in soil                                          | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method) | In-house method                                                                     | L009B         | D                  | MCERTS               |
| Total organic carbon (Automated) in soil                                    | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method) | In-house method                                                                     | L009B         | D                  | MCERTS               |
| Moisture Content                                                            | Moisture content, determined gravimetrically (up to 30°C)                                                                                           | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil                                                      | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight                          | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                                                   | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                                         | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |
| Sulphate, water soluble, in soil (16hr extraction)                          | Sulphate, water soluble, in soil (16hr extraction)                                                                                                  | In-house method                                                                     | L038B         | D                  | MCERTS               |
| Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil        | Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS              | In-house method based on USEPA 8270                                                 | L064B         | D                  | MCERTS               |
| TPH Chromatogram in soil                                                    | TPH Chromatogram in soil                                                                                                                            | In-house method                                                                     | L064B         | D                  | NONE                 |
| BTEX and/or Volatile organic compounds in soil                              | Determination of volatile organic compounds in soil by headspace GC-MS                                                                              | In-house method based on USEPA 8260                                                 | L073B         | W                  | MCERTS               |
| Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil | Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic                                 | In-house method                                                                     | L076B/L088    | D/W                | MCERTS               |
| Hexavalent chromium in soil                                                 | Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry                    | In-house method                                                                     | L080          | W                  | MCERTS               |
| pH in soil (automated)                                                      | Determination of pH in soil by addition of water followed by automated electrometric measurement                                                    | In-house method                                                                     | L099          | D                  | MCERTS               |

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

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

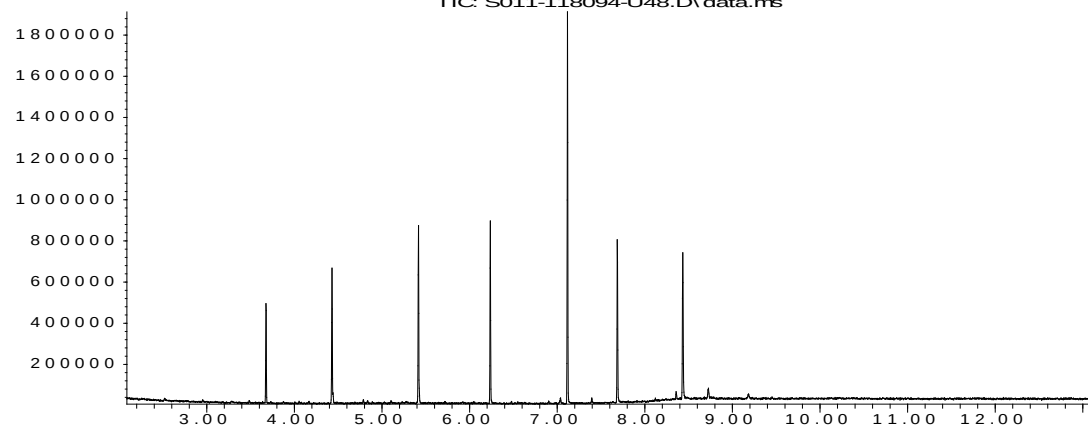
**For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.**

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

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

Abundance

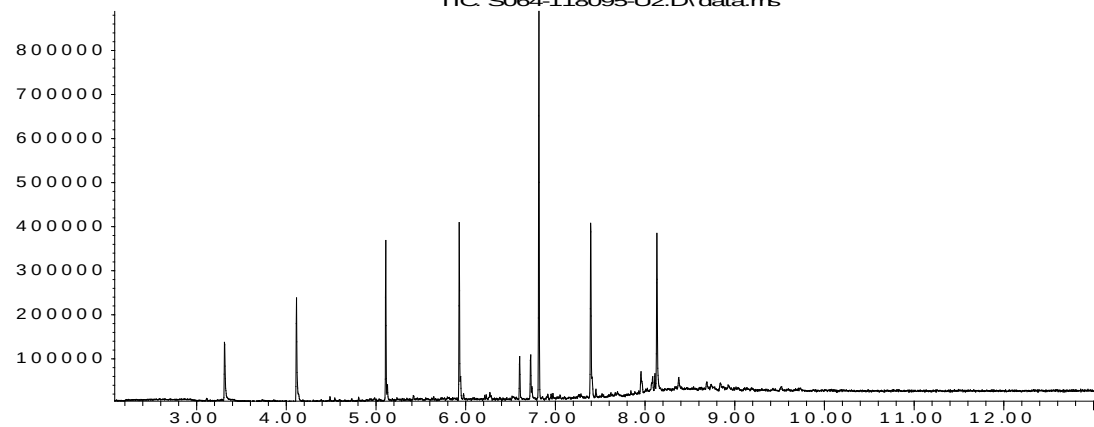
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Time-->

Abundance

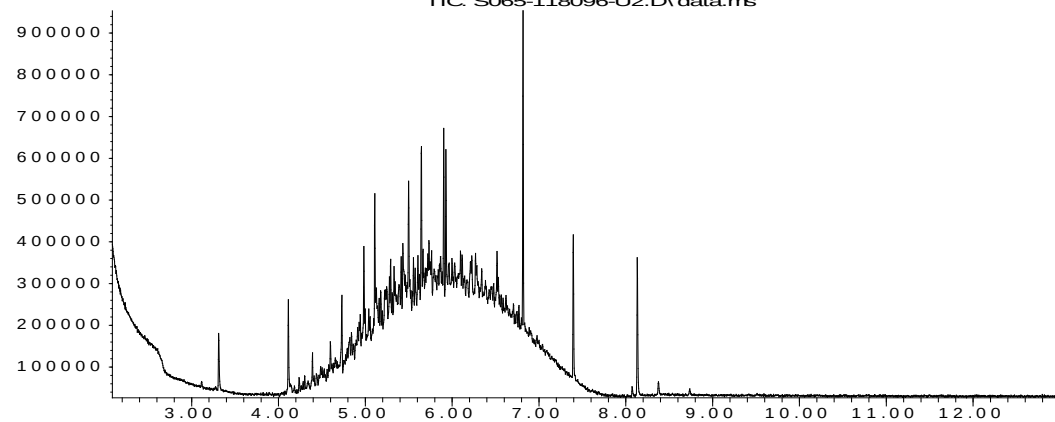
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Time-->

Abundance

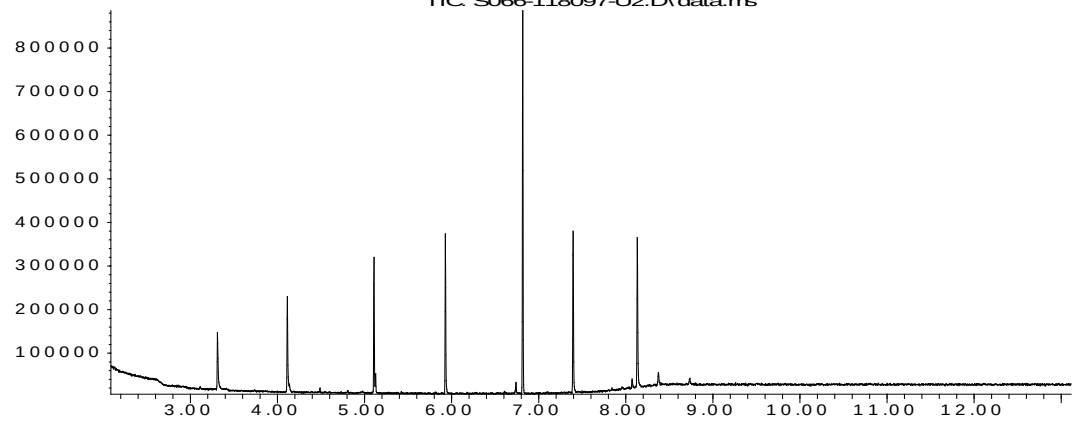
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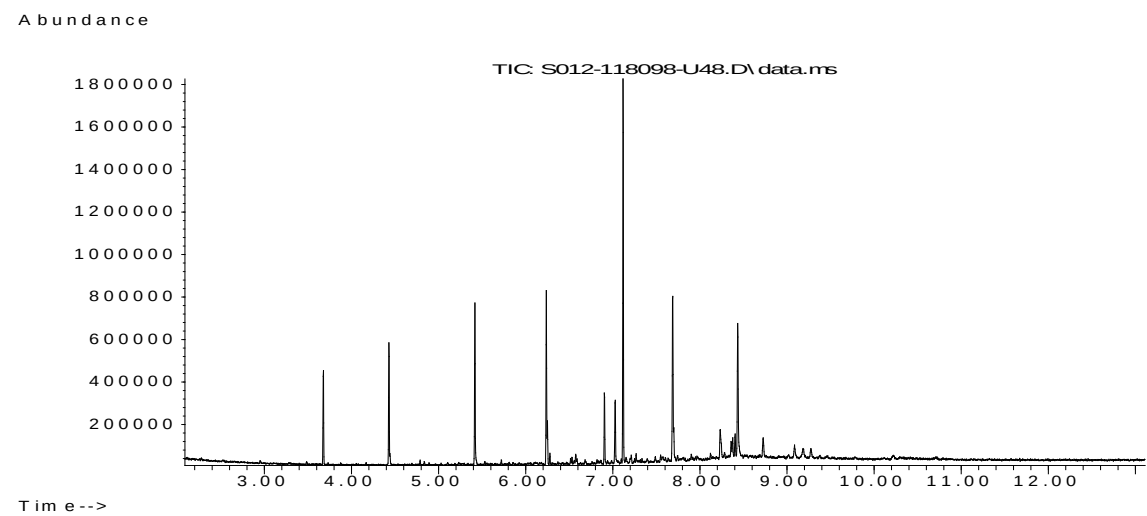
Time-->

Abundance

TIC: S066-118097-U2.D\data.ms



Time-->





## APPENDIX 4: MONITORING RESULTS

# Ground Gas and Groundwater Monitoring Record Sheet

## JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 22/09/2023

Quote No:  
Visit No: 1 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Tonsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments             |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|----------------------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |                      |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |                      |
| WS101            | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | 1                        | 1      | 17.8          | 18.8   | 0.2            | NR                     | 0                | 0      | -0.02                               | 30                               | 2.02                | 2.89              | all ok               |
| WS102            | ND                 | ND     | ND   | ND     | 4                     | 4      | ND                     | ND     | 1                        | 1      | 14.8          | 14.8   | 0.2            | NR                     | 0                | 0      | -0.1                                | 30                               | Dry                 | 2.78              | all ok               |
| WS103            | ND                 | ND     | ND   | ND     | 0.2                   | 0.2    | ND                     | ND     | 1                        | 1      | 15.6          | 15.6   | 0.2            | NR                     | 0.2              | 0.2    | -0.1                                | 30                               | 2.51                | 2.75              | all ok               |
| WS105            | ND                 | ND     | ND   | ND     | 6.4                   | 5.3    | ND                     | ND     | 1                        | 1      | 9.9           | 11.6   | 0.2            | NR                     | -0.1             | -0.1   | 0                                   | 30                               | 2.05                | 2.87              | installation damaged |
| Max              | ND                 | ND     | ND   | ND     | 6.4                   | 5.3    | ND                     | ND     | 1                        | 1      | 17.8          | 18.8   | 0.2            | NR                     | 0.2              | 0.2    | 0                                   | 30                               | 2.51                | 2.89              |                      |
| Min              | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | 1                        | 1      | 9.9           | 11.6   | 0.2            | NR                     | -0.1             | -0.1   | -0.1                                | 30                               | DRY                 | 2.75              |                      |

ND - Not detected

NR - Not recorded

NA - Non applicable

## METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☐ Dry ☒ Moist ☐ Wet ☐ Snow ☐ Frozen  
Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong  
Cloud cover: ☐ None ☒ Slight ☐ Cloudy ☐ Overcast  
Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy  
Time monitoring performed:  Start  End  
Barometric pressure (mbar):  Start  End  
Pressure trend (Daily):  Falling ☒ Steady  Rising  
Source:   
Air Temperature (Deg. C):  Before  After

## INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G505315  
Gas Range: CH<sub>4</sub> 0 - 100% CO<sub>2</sub> 0 - 100% O<sub>2</sub> 0 - 25%  
Gas Flow range: +100/-50 l/hour  
Differential Pressure: (+/-) 1000 Pa  
Date of last calibration: 13/04/2023  
Date of next calibration: 13/10/2023

Ambient air check: CH<sub>4</sub>  CO<sub>2</sub>  O<sub>2</sub>

# Ground Gas and Groundwater Monitoring Record Sheet

## JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 29/09/2023

Quote No:  
Visit No: 2 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Townsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments                                 |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|------------------------------------------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |                                          |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |                                          |
| WS101            | ND                 | ND     | ND   | ND     | 0.3                   | 0.1    | ND                     | ND     | 1                        | 1      | 18.8          | 18.8   | 0.0            | NR                     | 0                | 0      | 0.1                                 | 30                               | 2.62                | 2.75              | all ok                                   |
| WS102            | ND                 | ND     | ND   | ND     | 5.2                   | 5.2    | ND                     | ND     | 1                        | 1      | 14.3          | 14.3   | 0.0            | NR                     | 0.1              | 0.1    | 0.05                                | 30                               | 2.12                | 2.27              | all ok                                   |
| WS103            | ND                 | ND     | ND   | ND     | 4.3                   | 4.3    | ND                     | ND     | 1                        | 1      | 13.8          | 13.8   | 0.1            | NR                     | 0                | 0      | 4.05                                | 30                               | 2.21                | 3.60              | all ok                                   |
| WS104            | ND                 | ND     | ND   | ND     | 2.4                   | 2.4    | ND                     | ND     | 1                        | 1      | 17.3          | 17.3   | 0.0            | NR                     | 0.1              | 0.1    | 0.02                                | 30                               | dry                 | 2.78              | all ok                                   |
| WS105            | ND                 | ND     | ND   | ND     | 14.9                  | 14.9   | 1                      | 1      | 1                        | 1      | 1.3           | 1.3    | 0.1            | NR                     | 0.1              | 0.1    | -0.14                               | 30                               | 2.31                | 2.87              | damaged                                  |
| WS106            | ND                 | ND     | ND   | ND     | 0.6                   | 0.6    | 1                      | 1      | 1                        | 1      | 14.1          | 14.1   | 0.0            | NR                     | 0.1              | 0.1    | 0.03                                | 30                               | 2.36                | 3.06              | all ok, borehole was buried, photo taken |
| WS107            | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | 1                        | 1      | 19.9          | 20     | 0.1            | NR                     | 0                | 0      | -0.03                               | 30                               | 2.32                | 2.89              |                                          |
| WS108            | ND                 | ND     | ND   | ND     | 0.9                   | 0.9    | 1                      | 1      | ND                       | ND     | 16.9          | 16.9   | 0.0            | NR                     | 0.1              | 0.1    | -0.03                               | 30                               | 2.50                | 2.69              | all ok                                   |
| WS109            | ND                 | ND     | ND   | ND     | 0.9                   | 0.8    | ND                     | ND     | ND                       | ND     | 19.9          | 19.9   | 0.1            | NR                     | 0.1              | 0.1    | -0.02                               | 30                               | 2.53                | 2.68              | all ok                                   |
| WS110            | ND                 | ND     | ND   | ND     | 0.9                   | 0.9    | ND                     | ND     | ND                       | ND     | 19.1          | 19.1   | 0.3            | NR                     | 0.2              | 0.2    | 0.28                                | 30                               | 2.15                | 2.65              | all ok                                   |
| WS111            | ND                 | ND     | ND   | ND     | 0.6                   | 0.6    | ND                     | ND     | ND                       | ND     | 16.4          | 16.4   | 0.0            | NR                     | 0                | 0      | 0.05                                | 30                               | 2.06                | 2.19              | all ok                                   |
| Max              | ND                 | ND     | ND   | ND     | 14.9                  | 14.9   | 1                      | 1      | 1                        | 1      | 19.9          | 20.0   | 0.3            | NR                     | 0.2              | 0.2    | 4                                   | 30                               | 2.62                | 3.60              |                                          |
| Min              | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | ND                       | ND     | 1.3           | 1.3    | 0.0            | NR                     | 0.0              | 0.0    | -0.1                                | 30                               | DRY                 | 2.19              |                                          |

ND - Not detected  
NR - Not recorded  
NA - Non applicable

## METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen  
Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong  
Cloud cover: ☐ None ☒ Slight ☐ Cloudy ☐ Overcast  
Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy  
Time monitoring performed: ☐ 10:40 Start ☐ 12:48 End  
Barometric pressure (mbar): ☐ 1020 Start ☐ 1021 End  
Pressure trend (Daily): ☐ Falling ☐ Steady ☒ Rising  
Source: ☐ met office  
Air Temperature (Deg. C): ☐ 17 Before ☐ 18 After

## INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G505315  
Gas Range: CH<sub>4</sub> 0 - 100% CO<sub>2</sub> 0 - 100% O<sub>2</sub> 0 - 25%  
Gas Flow range: +100/-50 l/hour  
Differential Pressure: (+/-) 1000 Pa  
Date of last calibration: 13/04/2023  
Date of next calibration: 13/10/2023

Ambient air check: CH<sub>4</sub>  CO<sub>2</sub>  O<sub>2</sub>



# Ground Gas and Groundwater Monitoring Record Sheet

## JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 03/10/2023

Quote No:  
Visit No: 3 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Townsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|----------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |          |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |          |
| WS101            | ND                 | ND     | ND   | ND     | 0.6                   | 0.6    | ND                     | ND     | 1                        | 1      | 18.2          | 18.2   | 0.1            | NR                     | 0                | 0      | -0.09                               | 30                               | Dry                 | 2.74              | all ok   |
| WS102            | ND                 | ND     | ND   | ND     | 4.4                   | 4.4    | ND                     | ND     | 1                        | 1      | 14.7          | 14.7   | 0.0            | NR                     | 0                | 0      | -0.4                                | 30                               | Dry                 | 2.26              | all ok   |
| WS103            | ND                 | ND     | ND   | ND     | 4.4                   | 4.4    | 1                      | 1      | 1                        | 1      | 14.1          | 14.1   | 0.0            | NR                     | 0                | 0      | 3.57                                | 30                               | 2.29                | 3.60              | all ok   |
| WS104            | ND                 | ND     | ND   | ND     | 2.9                   | 2.9    | ND                     | ND     | 1                        | 1      | 16.1          | 16.1   | 0.0            | NR                     | 0                | 0      | -0.16                               | 30                               | Dry                 | 2.78              | all ok   |
| WS105            | ND                 | ND     | ND   | ND     | 13.5                  | 12.4   | ND                     | ND     | 1                        | 1      | 4.4           | 5.6    | 0.1            | NR                     | 0.1              | 0.1    | -0.21                               | 30                               | 2.37                | 2.87              | damaged  |
| WS106            | ND                 | ND     | ND   | ND     | 0.7                   | 0.7    | ND                     | ND     | 1                        | 1      | 17.5          | 17.5   | 0.0            | NR                     | 0                | 0      | -0.22                               | 30                               | 2.42                | 3.12              | all ok   |
| WS107            | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | 1                      | 1      | 1                        | 1      | 19.9          | 19.9   | 0.0            | NR                     | 0                | 0      | -0.03                               | 30                               | 2.42                | 2.90              | all ok   |
| WS108            | ND                 | ND     | ND   | ND     | 0.9                   | 0.9    | ND                     | ND     | 1                        | 1      | 17.5          | 17.5   | 0.1            | NR                     | 0                | 0      | -0.1                                | 30                               | 2.60                | 2.70              | all ok   |
| WS109            | ND                 | ND     | ND   | ND     | 0.9                   | 0.9    | ND                     | ND     | 1                        | 1      | 19.3          | 19.3   | 0.1            | NR                     | 0                | 0      | -0.09                               | 30                               | 2.58                | 2.68              | all ok   |
| WS110            | ND                 | ND     | ND   | ND     | 1.2                   | 1.2    | ND                     | ND     | 1                        | 1      | 18.2          | 18.2   | 0.2            | NR                     | 0                | 0      | -0.09                               | 30                               | 2.15                | 2.64              | all ok   |
| WS111            | ND                 | ND     | ND   | ND     | 1.9                   | 1.9    | ND                     | ND     | 1                        | 1      | 17.1          | 17.2   | 0.1            | NR                     | 0                | 0      | -0.07                               | 30                               | 2.09                | 2.19              | all ok   |
| Max              | ND                 | ND     | ND   | ND     | 13.5                  | 12.4   | 1                      | 1      | 1                        | 1      | 19.9          | 19.9   | 0.2            | NR                     | 0.1              | 0.1    | 4                                   | 30                               | 2.60                | 3.60              |          |
| Min              | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | 1                        | 1      | 4.4           | 5.6    | 0.0            | NR                     | 0.0              | 0.0    | -0.4                                | 30                               | DRY                 | 2.19              |          |

ND - Not detected  
NR - Not recorded  
NA - Non applicable

## METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen  
Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong  
Cloud cover: ☐ None ☐ Slight ☐ Cloudy ☒ Overcast  
Precipitation: ☐ None ☒ Slight ☐ Moderate ☐ Heavy  
Time monitoring performed: ☐ 12:25 Start ☐ 13:45 End  
Barometric pressure (mbar): ☐ 1021 Start ☐ 1022 End  
Pressure trend (Daily): ☐ Falling ☐ Steady ☒ Rising  
Source: ☐ met office  
Air Temperature (Deg. C): ☐ 16 Before ☐ 17 After

## INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G505315  
Gas Range: CH<sub>4</sub> 0 - 100% CO<sub>2</sub> 0 - 100% O<sub>2</sub> 0 - 25%  
Gas Flow range: +100/-50 l/hour  
Differential Pressure: (+/-) 1000 Pa  
Date of last calibration: 13/04/2023  
Date of next calibration: 13/10/2023

Ambient air check: CH<sub>4</sub>  CO<sub>2</sub>  O<sub>2</sub>



# Ground Gas and Groundwater Monitoring Record Sheet

## JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 11/10/2023

Quote No:  
Visit No: 4 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Townsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments                                |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|-----------------------------------------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |                                         |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |                                         |
| WS101            | ND                 | ND     | ND   | ND     | 3.1                   | 3.1    | ND                     | ND     | 1                        | 1      | 12.5          | 12.5   | 0.1            | NR                     | 0                | 0      | 0                                   | 30                               | Dry                 | 2.74              | all ok                                  |
| WS102            | ND                 | ND     | ND   | ND     | 4.9                   | 4.9    | ND                     | ND     | 1                        | 1      | 14.2          | 14.2   | 0.0            | NR                     | 0                | 0      | 0.02                                | 30                               | NR                  | NR                | bung stuck in BH, couldn't take GW dips |
| WS103            | ND                 | ND     | ND   | ND     | 4.8                   | 4.8    | ND                     | ND     | ND                       | ND     | 12.3          | 12.3   | 0.1            | NR                     | 0                | 0      | 0.02                                | 30                               | 2.36                | 3.59              | all ok                                  |
| WS104            | ND                 | ND     | ND   | ND     | 2.9                   | 2.9    | ND                     | ND     | 1                        | 1      | 17.5          | 17.5   | 0.1            | NR                     | 0                | 0      | -0.09                               | 30                               | Dry                 | 2.77              | all ok                                  |
| WS105            | ND                 | ND     | ND   | ND     | 14.9                  | 14.9   | ND                     | ND     | 1                        | 1      | 3.2           | 3.2    | 0.1            | NR                     | 0                | 0      | -0.17                               | 30                               | 2.45                | 2.87              | damaged                                 |
| WS106            | ND                 | ND     | ND   | ND     | 0.7                   | 0.7    | ND                     | ND     | 1                        | 1      | 17.9          | 17.9   | 0.1            | NR                     | 0                | 0      | -0.16                               | 30                               | 2.47                | 3.12              | all ok                                  |
| WS107            | ND                 | ND     | ND   | ND     | 0.2                   | 0.1    | ND                     | ND     | 1                        | 1      | 20            | 20.3   | 0.0            | NR                     | 0                | 0      | 0.05                                | 30                               | 2.48                | 2.89              | all ok                                  |
| WS108            | ND                 | ND     | ND   | ND     | 0.8                   | 0.8    | ND                     | ND     | 1                        | 1      | 19.1          | 19.1   | 0.0            | NR                     | 0                | 0      | 0.02                                | 30                               | Dry                 | 2.70              | all ok                                  |
| WS109            | ND                 | ND     | ND   | ND     | 0.7                   | 0.7    | ND                     | ND     | 1                        | 1      | 19.6          | 19.6   | 0.0            | NR                     | 0                | 0      | -0.03                               | 30                               | Dry                 | 2.68              | all ok                                  |
| WS110            | ND                 | ND     | ND   | ND     | 1.3                   | 1.3    | ND                     | ND     | 1                        | 1      | 17.9          | 17.9   | 0.0            | NR                     | 0                | 0      | 0                                   | 30                               | 2.22                | 2.63              | all ok                                  |
| WS111            | ND                 | ND     | ND   | ND     | 3.4                   | 3.4    | ND                     | ND     | ND                       | ND     | 11.5          | 11.5   | 0.0            | NR                     | 0                | 0      | 0.02                                | 30                               | Dry                 | 2.19              | all ok                                  |
| Max              | ND                 | ND     | ND   | ND     | 14.9                  | 14.9   | ND                     | ND     | 1                        | 1      | 20.0          | 20.3   | 0.1            | NR                     | 0.0              | 0.0    | 0                                   | 30                               | 2.48                | 3.59              |                                         |
| Min              | ND                 | ND     | ND   | ND     | 0.2                   | 0.1    | ND                     | ND     | ND                       | ND     | 3.2           | 3.2    | 0.0            | NR                     | 0.0              | 0.0    | -0.2                                | 30                               | DRY                 | 2.19              |                                         |

ND - Not detected  
NR - Not recorded  
NA - Non applicable

## METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen  
Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong  
Cloud cover: ☐ None ☐ Slight ☐ Cloudy ☒ Overcast  
Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy  
Time monitoring performed: ☐ 10:10 Start ☐ 11:40 End  
Barometric pressure (mbar): ☐ 1014 Start ☐ 1014 End  
Pressure trend (Daily): ☐ Falling ☐ Steady ☒ Rising  
Source: ☐ met office  
Air Temperature (Deg. C): ☐ 17 Before ☐ 18 After

## INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G505315  
Gas Range: CH<sub>4</sub> 0 - 100% CO<sub>2</sub> 0 - 100% O<sub>2</sub> 0 - 25%  
Gas Flow range: +100/-50 l/hour  
Differential Pressure: (+/-) 1000 Pa  
Date of last calibration: 13/04/2023  
Date of next calibration: 13/10/2023

Ambient air check: CH<sub>4</sub>  CO<sub>2</sub>  O<sub>2</sub>



Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 16/10/2023

Quote No:  
Visit No: 5 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Townsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments                                                                                                            |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|---------------------------------------------------------------------------------------------------------------------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |                                                                                                                     |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |                                                                                                                     |
| WS101            | ND                 | ND     | ND   | ND     | 1.3                   | 1.3    | ND                     | ND     | ND                       | ND     | 16.8          | 16.8   | 0.0            | NR                     | 0                | 0      | -0.26                               | 30                               | Dry                 | 2.74              | all ok                                                                                                              |
| WS102            | ND                 | ND     | ND   | ND     | 0.9                   | 0.9    | ND                     | ND     | ND                       | ND     | 20.5          | 20.5   | 0.0            | NR                     | 0                | 0      | -0.14                               | 30                               | NR                  | NR                | bung stuck in BH, couldn't take GW dips                                                                             |
| WS103            | ND                 | ND     | ND   | ND     | 4.5                   | 4.5    | ND                     | ND     | ND                       | ND     | 14.9          | 14.9   | 0.0            | NR                     | 0                | 0      | -0.95                               | 30                               | 2.20                | 3.59              | Water sample. Time: 11:50 Purge: 2L No smell, no oil, grey colour, very high sediment and turbidity.                |
| WS104            | ND                 | ND     | ND   | ND     | 3.2                   | 3.2    | ND                     | ND     | 1                        | 1      | 16.3          | 16.3   | 0.0            | NR                     | 0                | 0      | -0.28                               | 30                               | Dry                 | 2.78              | all ok                                                                                                              |
| WS105            | ND                 | ND     | ND   | ND     | 13.9                  | 13.8   | ND                     | ND     | ND                       | ND     | 5.1           | 5.1    | 0.0            | NR                     | 0                | 0      | -0.41                               | 30                               | 2.30                | 2.87              | damaged                                                                                                             |
| WS106            | ND                 | ND     | ND   | ND     | 1                     | 1      | ND                     | ND     | 1                        | 1      | 17.8          | 17.8   | 0.0            | NR                     | 0                | 0      | -0.36                               | 30                               | 2.26                | 3.12              | Water sample. Time: 10:30 Purge: 1.5L Smell of oil, oil on surface, brown colour, very high sediment and turbidity. |
| WS107            | ND                 | ND     | ND   | ND     | 1.1                   | 0.8    | ND                     | ND     | ND                       | ND     | 19            | 19     | 0.0            | NR                     | 0                | 0      | -0.21                               | 30                               | 2.28                | 2.89              | Water sample. Time: 11:00 Purge: 1L No smell, no oil, brown colour, very high sediment and turbidity.               |
| WS108            | ND                 | ND     | ND   | ND     | 0.5                   | 0.5    | ND                     | ND     | ND                       | ND     | 19.5          | 19.5   | 0.0            | NR                     | 0                | 0      | -0.33                               | 30                               | Dry                 | 2.70              | all ok                                                                                                              |
| WS109            | ND                 | ND     | ND   | ND     | 0.8                   | 0.8    | ND                     | ND     | ND                       | ND     | 19.8          | 19.8   | 0.0            | NR                     | 0                | 0      | -0.29                               | 30                               | Dry                 | 2.68              | all ok                                                                                                              |
| WS110            | ND                 | ND     | ND   | ND     | 0.7                   | 0.7    | ND                     | ND     | ND                       | ND     | 18.7          | 18.7   | 0.0            | NR                     | 0                | 0      | -0.19                               | 30                               | 2.11                | 2.63              | Water sample. Time: 11:30 Purge: 1L Smell of oil, oil sheen, grey colour, very high sediment and turbidity.         |
| WS111            | ND                 | ND     | ND   | ND     | 3.2                   | 3.2    | ND                     | ND     | ND                       | ND     | 12.5          | 12.5   | 0.0            | NR                     | 0                | 0      | -0.17                               | 30                               | Dry                 | 2.20              | all ok                                                                                                              |
| Max              | ND                 | ND     | ND   | ND     | 13.9                  | 13.8   | ND                     | ND     | 1                        | 1      | 20.5          | 20.5   | 0.0            | NR                     | 0.0              | 0.0    | 0                                   | 30                               | 2.30                | 3.59              |                                                                                                                     |
| Min              | ND                 | ND     | ND   | ND     | 0.5                   | 0.5    | ND                     | ND     | ND                       | ND     | 5.1           | 5.1    | 0.0            | NR                     | 0.0              | 0.0    | -1.0                                | 30                               | DRY                 | 2.20              |                                                                                                                     |

ND - Not detected  
NR - Not recorded  
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:

x

Dry

Moist

Wet

Wind:

Calm

x

Cloud cover:

None

x

Precipitation:

x

None

Time monitoring performed:

10:05

Start

12:12

Barometric pressure (mbar):

1022

Start

1021

Pressure trend (Daily):

x

Falling

Source:

met office

Air Temperature (Deg. C):

10

Before

11

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:

G505315

Gas Range:

CH<sub>4</sub> 0 - 100%

CO<sub>2</sub> 0 - 100%

O<sub>2</sub> 0 - 25%

Gas Flow range:

+100/-50 l/hour

Differential Pressure:

(+/-) 1000 Pa

Date of last calibration:

13/04/2023

Date of next calibration:

13/10/2023

Ambient air check:

CH<sub>4</sub> 0.0

CO<sub>2</sub> 0.1

O<sub>2</sub> 21.3



Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Colliers  
Site: Eastleigh  
Date: 23/10/2023

Quote No:  
Visit No: 6 of 6  
Operator: Hazel Alabaster  
Project Manager: Jake Townsend



|                  | GAS CONCENTRATIONS |        |      |        |                       |        |                        |        |                          |        |               |        | VOLATILES      |                        | FLOW DATA        |        |                                     |                                  | WELL AND WATER DATA |                   | Comments                                                                                                              |
|------------------|--------------------|--------|------|--------|-----------------------|--------|------------------------|--------|--------------------------|--------|---------------|--------|----------------|------------------------|------------------|--------|-------------------------------------|----------------------------------|---------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| Monitoring Point | Methane (%v/v)     |        | %LEL |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppmv) |        | Hydrogen sulphide (ppmv) |        | Oxygen (%v/v) |        | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Time for flow to equalise (secs) | Water level (mbgl)  | Depth of well (m) |                                                                                                                       |
|                  | Peak               | Steady | Peak | Steady | Peak                  | Steady | Peak                   | Steady | Peak                     | Steady | Min.          | Steady |                |                        | Peak             | Steady |                                     |                                  |                     |                   |                                                                                                                       |
| WS101            | ND                 | ND     | ND   | ND     | 1.6                   | 1.6    | ND                     | ND     | 1                        | 1      | 15.2          | 15.2   | 0.2            | NR                     | 0                | 0      | -0.09                               | 30                               | 2.56                | 2.75              | no smell, no oil, brown colour, very high sediment loading and very high turbidity                                    |
| WS102            | ND                 | ND     | ND   | ND     | 5                     | 5      | ND                     | ND     | ND                       | ND     | 15            | 15     | 0.2            | NR                     | 0                | 0      | -0.28                               | 30                               | NR                  | NR                | couldn't remove bung, no GW dips or sample                                                                            |
| WS103            | ND                 | ND     | ND   | ND     | 3.7                   | 3.7    | 1                      | 1      | ND                       | ND     | 15.5          | 15.5   | 0.3            | NR                     | 0                | 0      | -0.41                               | 30                               | 2.11                | 3.57              | no sample needed                                                                                                      |
| WS104            | ND                 | ND     | ND   | ND     | 3.8                   | 3.8    | ND                     | ND     | 1                        | 1      | 15.7          | 15.7   | 0.2            | NR                     | 0                | 0      | -0.14                               | 30                               | Dry                 | 2.78              | no water sample taken due to dry BH                                                                                   |
| WS105            | ND                 | ND     | ND   | ND     | 5                     | 4.4    | 1                      | 1      | 1                        | 1      | 14.9          | 15.4   | 0.1            | NR                     | 0.1              | 0.1    | -0.19                               | 30                               | 2.14                | 2.87              | water sample taken with peri pump. No smell, no oil, brown colour, very high sediment loading and very high turbidity |
| WS106            | ND                 | ND     | ND   | ND     | 1.6                   | 1.6    | ND                     | ND     | 1                        | 1      | 9.2           | 9.2    | 0.3            | NR                     | 0                | 0      | -0.16                               | 30                               | 2.15                | 3.13              | no sample needed                                                                                                      |
| WS107            | ND                 | ND     | ND   | ND     | 0.7                   | 0.2    | ND                     | ND     | 1                        | 1      | 18.9          | 20.1   | 0.2            | NR                     | 0.1              | 0.1    | -0.12                               | 30                               | 2.12                | 2.90              | no sample needed                                                                                                      |
| WS108            | ND                 | ND     | ND   | ND     | 0.6                   | 0.6    | ND                     | ND     | 1                        | 1      | 18            | 18     | 0.2            | NR                     | 0                | 0      | -0.09                               | 30                               | 2.44                | 2.70              | organic smell, no oil, brown colour, high sediment loading and high turbidity                                         |
| WS109            | ND                 | ND     | ND   | ND     | 0.3                   | 0.3    | 1                      | 1      | 1                        | 1      | 20.1          | 20.1   | 0.2            | NR                     | 0                | 0      | -0.07                               | 30                               | 2.46                | 2.69              | no smell, no oil, brown colour, high sediment loading and medium turbidity                                            |
| WS110            | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | ND                       | ND     | 19.5          | 19.5   | 0.2            | NR                     | 0                | 0      | -0.1                                | 30                               | 2.09                | 2.64              | no sample needed                                                                                                      |
| WS111            | ND                 | ND     | ND   | ND     | 3.7                   | 3.7    | ND                     | ND     | ND                       | ND     | 11.8          | 11.8   | 0.2            | NR                     | 0                | 0      | -0.12                               | 30                               | Dry                 | 2.20              | no water sample taken due to dry BH                                                                                   |
| Max              | ND                 | ND     | ND   | ND     | 5.0                   | 5.0    | 1                      | 1      | 1                        | 1      | 20.1          | 20.1   | 0.3            | NR                     | 0.1              | 0.1    | 0                                   | 30                               | 2.56                | 3.57              |                                                                                                                       |
| Min              | ND                 | ND     | ND   | ND     | 0.1                   | 0.1    | ND                     | ND     | ND                       | ND     | 9.2           | 9.2    | 0.1            | NR                     | 0.0              | 0.0    | -0.4                                | 30                               | DRY                 | 2.20              |                                                                                                                       |

ND - Not detected  
NR - Not recorded  
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

State of ground:Dry

Wind:Calm

Cloud cover:None

Precipitation:

x

None

Time monitoring performed:12:35 Start

Barometric pressure (mbar):1006 Start

Pressure trend (Daily):

x

FallingSteady

Source:met office

Air Temperature (Deg. C):13 Before14 After

MoistWetSnowFrozen

x

LightModerateStrong

SlightCloudy

x

Overcast

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:G505315

Gas Range:CH<sub>4</sub> 0 - 100%CO<sub>2</sub> 0 - 100%O<sub>2</sub> 0 - 25%

Gas Flow range:+100/-50 l/hour

Differential Pressure:(+/-) 1000 Pa

Date of last calibration:13/04/2023

Date of next calibration:13/10/2023

Ambient air check:CH<sub>4</sub>0.0CO<sub>2</sub>0.1O<sub>2</sub>20.1



## APPENDIX 5: LOCAL AUTHORITY CORRESPONDANCE



The following email correspondence references are summarised below:

- Morris, R (2023) Email to Charles Bruinvels 28th February 2023 Ref: DC/22/93188;
- Morris, R (2023) Email to Charles Bruinvels 11th August 2023 Ref: DC/22/93188; and,
- Morris, R (2023) Email to Charlie Manderfield 14th September 2023 Ref: DC/22/93188 conditions 4, 5 and 6 of F21/91183.
- Manderfield, C (2023). Email to Rachel Morris 6<sup>th</sup> September Ref: DC/22/93188 conditions 4, 5 and 6 of F21/91183.

**From:** [Manderfield, Charlie](#)  
**To:** [Morris, Rachael](#); [Scott, Neil](#)  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); [Clive Day](#); [Grundy, Mark](#); [Welton, Harry](#); [Sam Knowles](#); [Paul Knowles](#)  
**Subject:** DC/22/93188 conditions 4, 5 and 6 of F21/91183  
**Date:** 06 September 2023 15:19:00  
**Attachments:** [image001.jpg](#)  
[image002.jpg](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[Eastleigh Proposed Borehole Location Plan.pdf](#)

---

Hi Rachel, Neil

Thank you for passing on the response from the environmental health team. I am assisting my colleague Charlie B on the site at Woodside Road on resolving the outstanding planning conditions.

We have been given the go ahead from the client on the following works which we have suggested in order to satisfy the requirements from the contaminated land officer and address the data gaps identified by the team in the response. They consist of the following:

- 4 boreholes in locations as close as reasonably practicable (and/or downstream from) the former tanks;
- 6 boreholes along the site perimeter;
- Installation of all 10 drilled boreholes to facilitate ground gas and ground water monitoring;
- Ground gas monitoring on 6 occasions in order to support the existing ground gas risk present; and
- Groundwater sampling on 1 occasion in order to confirm groundwater direction and controlled waters risk.

Please also see the attached proposed borehole location plan for the works.

Furthermore, it will be observed that an inclusion of the potential for buried asbestos fibres to be present on site is included with a risk assessment within O+M files.

Below is the previously received council response (in blue), we have annotated (in red) details on the items we intend to provide additional data on, thus alleviating concern and expectantly permitting the discharge of the conditions.

#### Council Response

We note the response about the RMS not being agreed prior to two of the tanks being removed from site, (or site clearance or construction of the units) however we have not received a satisfactory response to our concerns raised about the adequacy of the site investigation despite these being raised quite some time ago, 2021. The report's author acknowledges that site access was limited at the time of the investigation and the potential for soil contamination to exist elsewhere where access was not possible at that time. It is stated that the demolition company removed tanks and pipework ahead of the consultants second visit to site.

The comment about a 'clouded timeline' and the client representative having left, does not address the issue of oversight of this project or evidence how the developer has ensured land

contamination risks were adequately investigated, assessed and mitigated.

We understand that if works are sanctioned by others this is not the consultants responsibility but rather falls to the site owner / developer and whomever was managing the project on their behalf.

However, from our perspective we have site where site clearance and remedial works were carried out, and the consultant writing the report has either not been present or had limited site access. There are considerable gaps in information and a paucity of validated information on ground conditions.

Regards comments on adequacy of testing, we would refer to the comments in the report acknowledging limited access etc. Sampling locations do not appear to be located near to the former tanks on site. The report advises that no plans of underground pipe runs were available at the time of the investigation. Reference is made to groundwater risk, however we do not appear to know the groundwater flow direction. Hydrocarbon odour and oily sheen in one of the ground water wells is reported during monitoring.

In order to address the above paragraphs, four boreholes targeting the former tanks will be drilled in addition to six boreholes around the perimeter of the site. This will allow the confirmation of the groundwater direction and confirmation of absence of elevated concentrations of contaminants in proximity to the former tanks and any wider contamination across the site within perimeter wells.

Asbestos, it is not clear what the basis is for saying that this was not considered widespread? The location where this was encountered was in made ground under a large building footprint which was otherwise inaccessible at the time. What information other than the statement from Marbank is there that no such materials were present?

Unfortunately no additional information is present other than the statement from Marbank. However, it is considered that given the covering of the site with buildings and hardstanding that no human health source-pathway-receptor is present and an inclusion of the potential for buried asbestos fibres to be present on site is included with a risk assessment within O+M files.

Further testing is also to be undertaken within areas of soft landscaping for provision within the verification reporting.

Regarding ground gas protection measures, again this was raised previously. Reviewing the proposed measures in the RMS, we note that all buildings are to be treated as Type D, in terms of protection measures however we note that Unit 5 has offices on the ground floor meaning these should be treated as Type B or C, with commensurately enhanced ground gas mitigation measures. Similarly, no reference is made to the use of pressure relief pathways.

We acknowledge the comment on treating the Unit 5 office area on the ground floor as a Type B or C. The initial classification of a CS2 was provided from preliminary data (3 rounds) and is considered to be a conservative risk assessment, where only a limited number of data points indicate a CS2. It is also considered that no significant ground gas source is present in the immediate vicinity of the site. We aim, by undertaking further monitoring (6 rounds) to provide a

more representative assessment from a larger data set, where the classification of the site as a CS2 may be reduced.

Consequently, we are unable to support the application for discharge of conditions. We would request that the points we have raised previously and reiterated above, and the comments about ground gas mitigation are addressed.

We hope the above scope is considered sufficient for the discharge of the conditions. Please get in touch with me on the below should you wish to discuss any of the above points.

Kind regards,  
Charlie

*Please note my updated contact information to reflect my recent name change from Charlotte Walker to Charlotte Manderfield*

## Charlotte Manderfield

Principal Geo-Environmental Consultant | Environmental  
**Colliers**

**M: 07721 628 651**

The Harlequin Building

65 Southwark Street | SE1 0HR London | United Kingdom



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**From:** [Bruinvels, Charles](#)  
**To:** [Manderfield, Charlie](#)  
**Subject:** FW: DC/22/93188  
**Date:** 06 September 2023 15:47:11  
**Attachments:** [image001.jpg](#)  
[image002.png](#)  
[image003.png](#)  
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[image013.jpg](#)

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**Charles Bruinvels** BSc MSc CEnv C.WEM  
Director | Environmental Technical Services  
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---

#### Business

**From:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Sent:** 16 August 2023 16:29  
**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Cc:** Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Liam Monaghan <[LiamMonaghan@marbank.co.uk](mailto:LiamMonaghan@marbank.co.uk)>; [jamiemurray@marbank.co.uk](mailto:jamiemurray@marbank.co.uk); [trevorroffey@marbank.co.uk](mailto:trevorroffey@marbank.co.uk)  
**Subject:** RE: DC/22/93188

Hello Charlie - have you been able to devise a strategy to overcome the objections?

regards

Paul Knowles  
ke architecture (london) ltd  
t 01494 776042

---

**From:** Bruinvels, Charles [<mailto:Charles.Bruinvels@colliers.com>]  
**Sent:** 11 August 2023 16:52  
**To:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Cc:** Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Liam Monaghan <[LiamMonaghan@marbank.co.uk](mailto:LiamMonaghan@marbank.co.uk)>; [jamiemurray@marbank.co.uk](mailto:jamiemurray@marbank.co.uk); [trevorroffey@marbank.co.uk](mailto:trevorroffey@marbank.co.uk)  
**Subject:** RE: DC/22/93188

Hi Paul

I'll discuss with the team here and will provide some next steps.

Thanks

**Charles Bruinvels** BSc MSc CEnv C.WEM  
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**Direct +44 20 7125 0112 | Mobile +447730 096894 | [View My Profile](#)**  
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Business

---

**From:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Sent:** 11 August 2023 16:22  
**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Cc:** Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Liam Monaghan <[LiamMonaghan@marbank.co.uk](mailto:LiamMonaghan@marbank.co.uk)>; [jamiemurray@marbank.co.uk](mailto:jamiemurray@marbank.co.uk); trevor roffey <[trevorroffey@marbank.co.uk](mailto:trevorroffey@marbank.co.uk)>  
**Subject:** RE: DC/22/93188

Hello Charlie – this response seems quite concerning, especially at this late stage of the project. Please can you provide your thoughts to the internal team including how to address the continuing issues.

Many thanks.

Paul Knowles  
ke architecture (london) ltd  
t 01494 776042

---

**From:** Morris, Rachael [<mailto:Rachael.Morris@eastleigh.gov.uk>]  
**Sent:** 11 August 2023 16:12  
**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Cc:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Subject:** RE: DC/22/93188

Hi Charlie,

I have just had the following response from our environmental health team based on your submitted reports.

We note the response about the RMS not being agreed prior to two of the tanks being removed from site, (or site clearance or construction of the units) however we have not received a satisfactory response to our concerns raised about the adequacy of the site investigation despite these being raised quite some time ago, 2021. The report's author acknowledges that site access was limited at the time of the investigation and the potential for soil contamination to exist elsewhere where access was not possible at that time. It is stated that the demolition company removed tanks and pipework ahead of the consultants second visit to site.

The comment about a 'clouded timeline' and the client representative having left, does not address the issue of oversight of this project or evidence how the developer has ensured land contamination risks were adequately investigated, assessed and mitigated.

We understand that if works are sanctioned by others this is not the consultants responsibility but rather falls to the site owner / developer and whomever was managing the project on their behalf.

However, from our perspective we have site where site clearance and remedial works were carried out, and the consultant writing the report has either not been present or had limited site access. There are considerable gaps in information and a paucity of validated information on ground conditions.

Regards comments on adequacy of testing, we would refer to the comments in the report acknowledging limited access etc. Sampling locations do not appear to be located near to the former tanks on site. The report advises that no plans of underground pipe runs were available at the time of the investigation. Reference is made to groundwater risk, however we do not appear to know the groundwater flow direction. Hydrocarbon odour and oily sheen in one of the ground water wells is reported during monitoring.

Asbestos, it is not clear what the basis is for saying that this was not considered widespread? The location where this was encountered was in made ground under a large building footprint which was otherwise inaccessible at the time. What information other than the statement from Marbank is there that no such materials were present?

Regarding ground gas protection measures, again this was raised previously. Reviewing the proposed measures in the RMS, we note that all buildings are to be treated as Type D, in terms of protection measures however we note that Unit 5 has offices on the ground floor meaning these should be treated as Type B or C, with commensurately enhanced ground gas mitigation measures. Similarly, no reference is made to the use of pressure relief pathways.

Consequently, we are unable to support the application for discharge of conditions. We would request that the points we have raised previously and reiterated above, and the comments about ground gas mitigation are addressed.

Kind regards,  
Rachael

**Rachael Morris**  
**Senior Planning Officer**  
Planning & Environment - Planning/Development Management  
023 8068 8463



---

**From:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Sent:** 11 August 2023 15:40  
**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Scott, Neil <[Neil.Scott@eastleigh.gov.uk](mailto:Neil.Scott@eastleigh.gov.uk)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Manderfield, Charlie <[Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Subject:** RE: DC/22/93188

Hi Rachael and Neil

I hope you are both well.

Are you both free next week to run through the outstanding contaminated land planning conditions?

I'm free Wednesday pm, all day Thursday and Friday after 10am.

Many thanks  
Charlie

**Charles Bruinvels** BSc MSc CEnv C.WEM  
Director | Environmental Technical Services  
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Business

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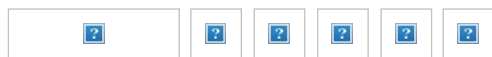
**From:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>  
**Sent:** 21 July 2023 11:17  
**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Scott, Neil <[Neil.Scott@eastleigh.gov.uk](mailto:Neil.Scott@eastleigh.gov.uk)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Manderfield, Charlie <[Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>  
**Subject:** RE: DC/22/93188

Hello,

Neil wont be back until 31<sup>st</sup> July and in order to allow time for Neil to review, I would suggest we have the meeting on 4<sup>th</sup> August? Does the am or pm work best for you?

Kind regards,  
Rachael

**Rachael Morris**  
**Senior Planning Officer**  
Planning & Environment - Planning/Development Management  
023 8068 8463



Eastleigh Borough Council | Eastleigh House | Upper Market Street | Eastleigh | SO50 9YN

---

**From:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Sent:** 21 July 2023 11:08  
**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Manderfield, Charlie <[Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>  
**Subject:** RE: DC/22/93188

Thanks for the quick response Rachael.

Ok that's great. We'll look forward to hearing from him when he returns. What date is he back?

Please could we plan a teams call with yourself, Neil, the project manager and the site team, so we can demonstrate how we have mitigated the risks

to human health and met the planning conditions.

Thanks  
Charlie

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Director | Environmental Technical Services  
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**From:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>  
**Sent:** 21 July 2023 11:01  
**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Manderfield, Charlie <[Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>  
**Subject:** RE: DC/22/93188

Hi Charlie,

I have chased our environmental health team but Neil is on leave so we will have to await his return. He did mention that he will need to review the site/project as a whole because of the complexity surrounding the fact work on site has already commenced.

Kind regards,  
Rachael

**Rachael Morris**  
**Senior Planning Officer**  
Planning & Environment - Planning/Development Management  
023 8068 **8463**



Eastleigh Borough Council | Eastleigh House | Upper Market Street | Eastleigh | SO50 9YN

**From:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Sent:** 21 July 2023 10:58  
**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Manderfield, Charlie <[Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>  
**Subject:** RE: DC/22/93188

Hi Rachael

I hope you are well.

Please could you provide an update?

We are nearing the end of the project and we're currently preparing the verification reports.

Many thanks  
Charlie

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Director | Environmental Technical Services  
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#### Business

**From:** Bruinvels, Charles

**Sent:** 13 July 2023 16:29

**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Walker, Charlie <[Charlie.Walker@colliers.com](mailto:Charlie.Walker@colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>

**Subject:** RE: DC/22/93188

Hi Rachael

I hope you are well.

Please could you let me know if these reports have been approved?

Many thanks

Charlie

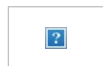
**Charles Bruinvels** BSc MSc CEnv C.WEM

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#### Business

**From:** Bruinvels, Charles

**Sent:** 30 May 2023 11:37

**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>; Walker, Charlie <[Charlie.Walker@colliers.com](mailto:Charlie.Walker@colliers.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>

**Subject:** RE: DC/22/93188

Hi Rachael

I hope you are well.

I've been asked to issue you with the following documents:

1. An Updated Remediation Strategy, which addresses your previous comments.
2. An updated AST Verification Letter
3. An updated Interceptor Verification Letter

<https://we.tl/t-Xb8FnXM6os>

We are currently compiling:

4. A verification report for the gas mitigation measures used
5. A verification report for clean cover

I have also summarised our responses to the queries set out below and in the attached:

Regarding information submitted for conditions 4, 5 and 6 and the report by Paragon, entitled, 'WOODSIDE AVENUE, EASTLEIGH – TANK VERIFICATION REPORT', ref: 220041/CB/AST, dated 1 June 2022, we note that this relates specifically to the removal of 3 storage tanks and soil testing carried out.

Two samples of shallow soils were tested each for tanks 1 and 2, and one for tank 3, as shown in the figure on page 7 of the report, 'Tank Removal and Stockpile plan'. With respect to the results of the tests carried out the report states, 'The results of the chemical analysis have been presented in Appendix 3 and confirm the concentrations of petroleum hydrocarbons in these areas were minimal and below the Acceptance Criteria, which in this case was the S4ULs for a commercial land use'.

However, we would note that, these remedial works took place without an agreed RMS being in place and as required by condition, indeed our records

do not show that the RMS is agreed even at this time.

Colliers response: We understand that the Remediation Strategy document was either not submitted or had not been agreed prior to demolition/tank removal works taking place. Colliers and Marbank were not involved with the demolition phase of works and understood everything to be agreed. Unfortunately the client representative has now left their business, which has left a clouded timeline. In order to rectify this, please see our updated Remediation Strategy on the link above which clarifies our strategy and sequence of works.

Comment made previously in respect of the proposed tank removal and testing highlighted our concerns that insufficient testing had been carried out at that time, including groundwater, (due to site access issues) and highlighted the need for testing more thoroughly in the areas of tanks, associated infrastructure and fuel filling on site. The limited test data included with the tank report does not address this sufficiently.

Colliers response: The scope of works Colliers completed was restricted by our instruction (set by the client), plant and equipment movements onsite and stockpiles of crushed concrete. However, we were able to undertake an assessment which confirmed that no visual or olfactory evidence of hydrocarbon contamination was present in the location of the former tanks. Furthermore, the Phase 2 assessment found no evidence of contamination within the groundwater. As the assessment included boreholes across the site, we are satisfied that we would have found contamination if it was present. In addition, the Phase 2 report concluded a low risk to controlled waters based on the low levels of contaminants, due to the site not being situated within a Source Protection Zone and as there are no groundwater abstractions within 1km. As such, no further works are considered to be required in relation to controlled waters.

The report highlights that asbestos impacted soils were encountered under tank 3, however it is unclear what remedial action has been taken in respect of these soils, or whether additional site investigation was carried out to assess how widespread the asbestos contamination was across the site. Actions to be taken should be included and agreed in the RMS.

Colliers response: Asbestos was identified in one location during verification works, and it is not considered to be widespread. It is understood that the encountered fragment was to be beneath the proposed units. The client then confirmed that the slab would be poured over this area to encapsulate the asbestos. Colliers didn't have an opportunity to assess further, however based on our view that the majority of the site is to be capped with either roads, car parking or the building footprint, the risk of exposure to future users would be minimal. Furthermore, the developer Marbank have not reported asbestos under the discovery strategy. As such, this is considered an isolated occurrence.

With respect to the comments in the email below from Mr Bruinvels:

- *'My understanding is that the Remediation Strategy and the two verification reports (AST and the interceptor) close out the land contamination matters'* – As of yet we have not received a satisfactory, or any direct, response to the comments raised previously on the RMS and associated matters, and where we highlighted our concerns about why could not agree it at that time (nor am I aware that we have subsequently) – We hope that this email and reports help to clarify these points
- *'We will prepare the gas summary letter to cover off Fiona's comments separately'*. We look forward to receiving this but would add that the matters relate to the RMS and specifically to ground gas protection mitigation and verification plan thereof and that this is pre-commencement requirement. – The Remediation strategy has been updated to include clarification on the gas mitigation measures to be installed in line with BS8485 guidance.
- *The current conditions require submission of the validation report, following completion of works in line with the agreed RMS.* – We have attached the first of 4 reports (AST removal, interceptor removal, and to follow: the gas verification and clean cover verification reports.

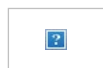
Unfortunately, therefore we are not able to recommend discharge of condition at this time. We would also restate our previous comment that where the development proceeds and the RMS not agreed, that we may not be able to agree discharge of condition for the works carried out on site until such time that the matters we raised previously (copy attached) have been satisfactorily addressed. – We understand that there has been miscommunication on the project due to changes in management, but hope this email and attachments clarify the outstanding points.

We understand that the client is hoping that the outstanding conditions can now be signed off. We believe we have now submitted the information to do so.

Please let me know if you require further clarification.

Many thanks  
Charlie

**Charles Bruinvels**  
Director | Environmental Technical Services  
**Direct +44 20 7125 0112 | Mobile +447730 096894 | [View My Profile](#)**  
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Business

**From:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>

**Sent:** 24 April 2023 11:30

**To:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>  
**Subject:** RE: DC/22/93188

Hi Charlie,

Please can I have an update on how you are getting on with this?

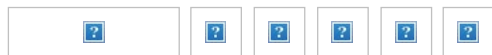
Thank you.

Kind regards,  
Rachael

## Rachael Morris

### Senior Planning Officer

Service Delivery - Specialist Services - Housing and Development  
023 8068 8463



Eastleigh Borough Council | Eastleigh House | Upper Market Street | Eastleigh | SO50 9YN

---

**From:** Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>

**Sent:** 06 April 2023 10:16

**To:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>

**Subject:** RE: DC/22/93188

Hi Rachael

Thanks for the note.

We have now received the remaining information for the gas requirements and are updating the remediation strategy in line with your comments.

We are hoping to issue the report to the team for review next week.

Thanks  
Charlie

## Charles Bruinvels

Director | Environmental Technical Services

**Direct +44 20 7125 0112 | Mobile +447730 096894 | [View My Profile](#)**

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## Business

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**From:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>

**Sent:** 06 April 2023 09:40

**To:** Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>; Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>

**Subject:** RE: DC/22/93188

Hi all,

Regarding the discharge of condition application, DC/22/93188, for conditions 4, 5 and 6 of F/21/91183, is there an update for the below?

Thank you.

Kind regards,  
Rachael

**Rachael Morris**  
**Senior Planning Officer**

Service Delivery - Specialist Services - Housing and Development  
023 8068 8463



Eastleigh Borough Council | Eastleigh House | Upper Market Street | Eastleigh | SO50 9YN



---

**From:** Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>

**Sent:** 28 February 2023 09:07

**To:** Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>; Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>

**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>

**Subject:** DC/22/93188

Hi all,

Regarding information submitted for conditions 4, 5 and 6 and the report by Paragon, entitled, 'WOODSIDE AVENUE, EASTLEIGH – TANK VERIFICATION REPORT', ref: 220041/CB/AST, dated 1 June 2022, we note that this relates specifically to the removal of 3 storage tanks and soil testing carried out. Two samples of shallow soils were tested each for tanks 1 and 2, and one for tank 3, as shown in the figure on page 7 of the report, 'Tank Removal and Stockpile plan'. With respect to the results of the tests carried out the report states, *'The results of the chemical analysis have been presented in Appendix 3 and confirm the concentrations of petroleum hydrocarbons in these areas were minimal and below the Acceptance Criteria, which in this case was the S4ULs for a commercial land use'*.

However, we would note that, these remedial works took place without an agreed RMS being in place and as required by condition, indeed our records do not show that the RMS is agreed even at this time.

Comment made previously in respect of the proposed tank removal and testing highlighted our concerns that insufficient testing had been carried out at that time, including groundwater, (due to site access issues) and highlighted the need for testing more thoroughly in the areas of tanks, associated infrastructure and fuel filling on site. The limited test data included with the tank report does not address this sufficiently.

The report highlights that asbestos impacted soils were encountered under tank 3, however it is unclear what remedial action has been taken in respect of these soils, or whether additional site investigation was carried out to assess how widespread the asbestos contamination was across the site. Actions to be taken should be included and agreed in the RMS.

With respect to the comments in the email below from Mr Bruinvels:

- *'My understanding is that the Remediation Strategy and the two verification reports (AST and the interceptor) close out the land contamination matters'* – As of yet we have not received a satisfactory, or any direct, response to the comments raised previously on the RMS and associated matters, and where we highlighted our concerns about why could not agree it at that time (nor am I aware that we have subsequently)
- *'We will prepare the gas summary letter to cover off Fiona's comments separately'*. We look forward to receiving this but would add that the matters relate to the RMS and specifically to ground gas protection mitigation and verification plan thereof and that this is pre-commencement requirement.
- The current conditions require submission of the validation report, following completion of works in line with the agreed RMS.

Unfortunately, therefore we are not able to recommend discharge of condition at this time. We would also restate our previous comment that where the development proceeds and the RMS not agreed, that we may not be able to agree discharge of condition for the works carried out on site until such time that the matters we raised previously (copy attached) have been satisfactorily addressed.

Thank you.

Kind regards,  
Rachael

**Rachael Morris**  
**Senior Planning Officer**

Service Delivery - Specialist Services - Housing and Development  
023 8068 8463



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**From:** Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>  
**Sent:** 21 February 2023 11:11  
**To:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>; Morris, Rachael <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>; Bruinvels, Charles <[Charles.Bruinvels@colliers.com](mailto:Charles.Bruinvels@colliers.com)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>; Grundy, Mark <[Mark.Grundy@colliers.com](mailto:Mark.Grundy@colliers.com)>  
**Subject:** RE: Planning Application Consultation Request F/21/91183  
**Importance:** High

Hi Paul,

Thanks regarding planning conditions 4,5 & 6 @Bruinvels, Charles is copied in who can assist with the remaining items if this can be identified and confirmed for himself.

Regards

**Harry Welton**  
Project Manager | Project Management  
Direct +44 117 301 7800 | [View My Profile](#)  
Colliers  
Ground Floor, Templeback, 10 Temple Back | Bristol BS1 6FL | United Kingdom



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**From:** Paul Knowles <[paul@ke-architecture.com](mailto:paul@ke-architecture.com)>  
**Sent:** 20 February 2023 17:58  
**To:** 'Morris, Rachael' <[Rachael.Morris@eastleigh.gov.uk](mailto:Rachael.Morris@eastleigh.gov.uk)>; Sam Knowles <[samk@il-consultants.com](mailto:samk@il-consultants.com)>  
**Cc:** [Liammonaghan@marbank.co.uk](mailto:Liammonaghan@marbank.co.uk); Welton, Harry <[Harry.Welton@colliers.com](mailto:Harry.Welton@colliers.com)>; Clive Day <[cliveday@marbank.co.uk](mailto:cliveday@marbank.co.uk)>  
**Subject:** RE: Planning Application Consultation Request F/21/91183

Hello Rachael and apologies for the confusion. I can confirm current information as follows:

PLANNING CONDITIONS DISCHARGE DC/22/93188 – 3 (construction environment management plan)  
Any update please further to my email to you 19 December 022 with the revised CEMP?

PLANNING CONDITIONS DISCHARGE DC/22/93188 – 4, 5 & 6 (fuel tanks removal and contamination)  
Harry at Colliers is now coordinating these aspects, accordingly please can he advise the current documents for these conditions.

PLANNING CONDITION NMA F/21/91183 - 9 (new access)  
Attached AVAL drawing 91924-0000-002 A is the current version associated with the S278 technical approval.

PLANNING CONDITIONS NMA F/21/91183 - 15 & 16 (approved flood risk assessment and drainage system documents)  
Mine and I&L's emails to you dated 11 January 023 with I&L information remain current.

I suggest that information submitted before you took on the case is treated as being superceded. Please also note that we are still to respond to you on the landscape scheme conditions discharge 11, 12 and 13 (DC/22/93706) as we are awaiting input from the landscape subcontractor.

Any further queries please do not hesitate to contact me.

Kind regards

**Paul Knowles**  
ke architecture (london) ltd  
t 01494 776042

**From:** [Morris, Rachael](#)  
**To:** [Manderfield, Charlie](#)  
**Subject:** RE: DC/22/93188 conditions 4, 5 and 6 of F21/91183  
**Date:** 14 September 2023 14:58:10  
**Attachments:** [image001.jpg](#)  
[image002.jpg](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[image766049.png](#)  
[image819184.png](#)  
[image712331.png](#)  
[image982049.png](#)  
[image182876.png](#)  
[image910347.png](#)

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Hi Charlie,

I have had the following comments from Environmental Health.

We have received the proposal of additional post construction investigation works to demonstrate that site has not posed a potential impact over human health and controlled waters. After a review of the proposed works, we have the following comments:

- The proposed 4 boreholes in the vicinity of the former tanks are acceptable. However, we suggest that one additional borehole is included within the vicinity of the former refuelling area that was not investigated due to trafficking constraints. Environmental soil testing would be required to demonstrate the areas are not impacted by contamination.
- The proposed 6 boreholes along the site perimeter are acceptable.
- We agree the monitoring regime of 6 monitoring visits to assess ground gas risk. Please consider that at least two sets of readings should be at low and falling atmospheric pressure (known as worst case conditions) as indicated in Table 5.5b of CIRIA 665. A supplementary ground gas risk assessment is expected to be submitted after monitoring regime is finished.
- In addition, have the risk from radon gas been considered? The site sits within an area within 3-5% above the action level and current guidance indicate that basic radon protection is required.
- Is groundwater sampling proposed in all monitoring wells? What environmental testing is planning to be undertaken in those samples? A groundwater risk assessment would be also required to be submitted to the LPA.
- Regarding asbestos, in addition to the ACM encountered at location WS05 at 0.45m bgl during the main investigation (Combined Phase 1 and 2 Environmental Risk Assessment and Ground Investigation Report dated 03/06/2021 written by Paragon); we noted that the Tank Verification Letter Report (dated 01/06/2022 named: Woodside Avenue, Eastleigh - Tank Verification Report written by Paragon reference 220041/CB/AST) indicates the presence of asbestos within area of Tank 3 (quantified as 1.33% chrysotile cement), which confirmed our thoughts about a larger area impacted by asbestos and not localised as mentioned in the Combined Ground Investigation Report. Moreover, the report indicates: *'confirmation should be sought as to whether this material is to remain onsite (i.e. encapsulated beneath the yard) or if it is to be disposed of offsite'*. If the material remained on site, is there any evidence on how the asbestos contaminated material was managed during construction?, or otherwise, do you have any waste transfer tickets confirming the appropriate hazardous waste disposal off-site?

Kind regards,  
Rachael

## Rachael Morris

### Senior Planning Officer

Planning & Environment - Planning/Development Management  
023 8068 8463



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#### Business

**From:** Manderfield, Charlie <Charlie.Manderfield@Colliers.com>

**Sent:** Wednesday, September 6, 2023 3:20 PM

**To:** Morris, Rachael <Rachael.Morris@eastleigh.gov.uk>; Scott, Neil <Neil.Scott@eastleigh.gov.uk>

**Cc:** Liammonaghan@marbank.co.uk; Clive Day <cliveday@marbank.co.uk>; Grundy, Mark <Mark.Grundy@colliers.com>; Welton, Harry <Harry.Welton@colliers.com>; Sam Knowles <samk@il-consultants.com>; Paul Knowles <paul@ke-architecture.com>

**Subject:** DC/22/93188 conditions 4, 5 and 6 of F21/91183

Hi Rachel, Neil

Thank you for passing on the response from the environmental health team. I am assisting my colleague Charlie B on the site at Woodside Road on resolving the outstanding planning conditions.

We have been given the go ahead from the client on the following works which we have suggested in order to satisfy the requirements from the contaminated land officer and address the data gaps identified by the team in the response. They consist of the following:

- 4 boreholes in locations as close as reasonably practicable (and/or downstream from) the former tanks;
- 6 boreholes along the site perimeter;
- Installation of all 10 drilled boreholes to facilitate ground gas and ground water monitoring;
- Ground gas monitoring on 6 occasions in order to support the existing ground gas risk present; and
- Groundwater sampling on 1 occasion in order to confirm groundwater direction and

controlled waters risk.

Please also see the attached proposed borehole location plan for the works.

Furthermore, it will be observed that an inclusion of the potential for buried asbestos fibres to be present on site is included with a risk assessment within O+M files.

Below is the previously received council response (in blue), we have annotated (in red) details on the items we intend to provide additional data on, thus alleviating concern and expectantly permitting the discharge of the conditions.

#### Council Response

We note the response about the RMS not being agreed prior to two of the tanks being removed from site, (or site clearance or construction of the units) however we have not received a satisfactory response to our concerns raised about the adequacy of the site investigation despite these being raised quite some time ago, 2021. The report's author acknowledges that site access was limited at the time of the investigation and the potential for soil contamination to exist elsewhere where access was not possible at that time. It is stated that the demolition company removed tanks and pipework ahead of the consultants second visit to site.

The comment about a 'clouded timeline' and the client representative having left, does not address the issue of oversight of this project or evidence how the developer has ensured land contamination risks were adequately investigated, assessed and mitigated.

We understand that if works are sanctioned by others this is not the consultants responsibility but rather falls to the site owner / developer and whomever was managing the project on their behalf.

However, from our perspective we have site where site clearance and remedial works were carried out, and the consultant writing the report has either not been present or had limited site access. There are considerable gaps in information and a paucity of validated information on ground conditions.

Regards comments on adequacy of testing, we would refer to the comments in the report acknowledging limited access etc. Sampling locations do not appear to be located near to the former tanks on site. The report advises that no plans of underground pipe runs were available at the time of the investigation. Reference is made to groundwater risk, however we do not appear to know the groundwater flow direction. Hydrocarbon odour and oily sheen in one of the ground water wells is reported during monitoring.

In order to address the above paragraphs, four boreholes targeting the former tanks will be drilled in addition to six boreholes around the perimeter of the site. This will allow the confirmation of the groundwater direction and confirmation of absence of elevated concentrations of contaminants in proximity to the former tanks and any wider contamination across the site within perimeter wells.

Asbestos, it is not clear what the basis is for saying that this was not considered widespread? The location where this was encountered was in made ground under a large building footprint which

was otherwise inaccessible at the time. What information other than the statement from Marbank is there that no such materials were present?

Unfortunately no additional information is present other than the statement from Marbank. However, it is considered that given the covering of the site with buildings and hardstanding that no human health source-pathway-receptor is present and an inclusion of the potential for buried asbestos fibres to be present on site is included with a risk assessment within O+M files.

Further testing is also to be undertaken within areas of soft landscaping for provision within the verification reporting.

Regarding ground gas protection measures, again this was raised previously. Reviewing the proposed measures in the RMS, we note that all buildings are to be treated as Type D, in terms of protection measures however we note that Unit 5 has offices on the ground floor meaning these should be treated as Type B or C, with commensurately enhanced ground gas mitigation measures. Similarly, no reference is made to the use of pressure relief pathways.

We acknowledge the comment on treating the Unit 5 office area on the ground floor as a Type B or C. The initial classification of a CS2 was provided from preliminary data (3 rounds) and is considered to be a conservative risk assessment, where only a limited number of data points indicate a CS2. It is also considered that no significant ground gas source is present in the immediate vicinity of the site. We aim, by undertaking further monitoring (6 rounds) to provide a more representative assessment from a larger data set, where the classification of the site as a CS2 may be reduced.

Consequently, we are unable to support the application for discharge of conditions. We would request that the points we have raised previously and reiterated above, and the comments about ground gas mitigation are addressed.

We hope the above scope is considered sufficient for the discharge of the conditions. Please get in touch with me on the below should you wish to discuss any of the above points.

Kind regards,  
Charlie

*Please note my updated contact information to reflect my recent name change from Charlotte Walker to Charlotte Manderfield*

**Charlotte Manderfield**

Principal Geo-Environmental Consultant | Environmental  
**Colliers**

**M: 07721 628 651**

The Harlequin Building  
65 Southwark Street | SE1 0HR London | United Kingdom





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Business



## APPENDIX 6: GROUND GAS PROTECTION MEASURES AND RADON PROTECTION CONFIRMATION



# GP<sup>®</sup>1 SAM

GP<sup>®</sup>1 SAM, gas protection self adhesive membrane, is a bituminous gas proof and water proof sheet, composed of self-adhesive SBS polymer modified bitumen incorporating GP<sup>®</sup>1 with an upper surface finish of black reinforced LDPE, and a lower surface finish of siliconized release film. GP<sup>®</sup>1 SAM is used for the gas/waterproofing of underground structures where harmful ground gasses are anticipated, and as a self adhesive accessory to GP<sup>®</sup>1.

|           |                       |
|-----------|-----------------------|
| Thickness | 1.2 mm                |
| Width     | 0.9 m or 0.3 m        |
| Length    | 20 m                  |
| Weight    | 1100 g/m <sup>2</sup> |

## **TITANTECH<sup>®</sup>**

For developers of brownfield and contaminated sites the TITANTECH<sup>®</sup> family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

### **Handling**

Roll weights can be in excess of 20 kg (approx 33 kg/roll) and hence appropriate care and equipment is required for unloading and handling. This product is non-toxic nor flammable.

### **Storage**

Rolls of GP<sup>®</sup>1 SAM should be stored on in a cool, dry place, and be protected from exposure to rain, sun, heat and cold temperatures prior to installation. Exposure to sunlight for extended period of time could cause difficulty with removal of the release film.





| Feature                      | Characteristics                                              | Test Method    | GP <sup>®</sup> 1 SAM                     |
|------------------------------|--------------------------------------------------------------|----------------|-------------------------------------------|
| Physical Properties          | Thickness                                                    | EN 1849-2      | 1.2 mm                                    |
|                              | Width                                                        | EN 1849-2      | 0.9 or 0.3 m                              |
|                              | Length                                                       | EN 1849-2      | 20 m                                      |
|                              | Weight                                                       | EN 1849-2      | 1100 g/m <sup>2</sup>                     |
| Hydraulic Press              | Water Tightness                                              | EN 1928        | Pass                                      |
|                              | Water Vapour Transmission                                    | EN 1931        | 0.013 g/m <sup>2</sup> /day               |
| Mechanical Properties        | Tensile Strength (MD/CMD)                                    | EN 12311-2 (A) | 500 N/50mm                                |
|                              | Elongation (MD/CMD)                                          | EN 12311-2 (A) | > 12 %                                    |
|                              | Resistance to Static Load                                    | EN 12370       | 20 kg                                     |
|                              | Joint Strength                                               | EN 12317-2     | > 30 N                                    |
|                              | Durability and Water Tightness (Ageing and Chemicals) 60 kPa | EN 1847        | Pass                                      |
|                              | Resistance to Nail Tear (MD/CMD)                             | EN 12310-1     | > 300 N                                   |
|                              | Resistance to Fire                                           | EN 13501       | F Euro Class                              |
| Gas Permeability             | Methane Permeability                                         | EN ISO 15105-1 | < 0.68 ml/m <sup>2</sup> /day/atm         |
|                              | Carbon Dioxide Permeability                                  | EN ISO 15105-1 | < 2.81 ml/m <sup>2</sup> /day/atm         |
|                              | Radon Permeability                                           | K124/02/95     | 8.0 x 10 <sup>-15</sup> m <sup>2</sup> /S |
| Compliance and Certification | CE Mark - EN13967:2012 + A1:2017 Type (A/T)                  |                |                                           |
|                              | BS 8485:2015 Compliant (Methane and Carbon Dioxide Barrier)  |                |                                           |

## JUTA UK

Please contact JUTA UK Directly for more information on GP<sup>®</sup>1 SAM

## Installation

GP<sup>®</sup>1 SAM should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015, and/or BS 8102:2009.

It is recommended that GP<sup>®</sup>1 SAM is not applied in temperatures below 10°C, in colder weather the material can be warmed slightly to aid adhesion.

## Accessory Products

- GP<sup>®</sup> Primer
- GP<sup>®</sup> Protection Board
- GP<sup>®</sup> Protection Fleece

Gas Membrane Installation  
Validation Report  
Woodside Avenue  
Woodside Road  
Eastleigh  
Southampton  
Version 1  
Issued 19/01/23

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## 1. INTRODUCTION

### 1.1 Purpose

MB Membranes are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by MB Membranes to carry out independent validation of the installation of the membrane on the site as per our terms of engagement. The frequency of independent inspections has been determined by the client, comprehensive CQA should be forwarded by the installer to cover any data gaps for areas that have not been subjected to independent inspections.

The **SOLE** purpose of the works undertaken by MEC Environmental is to provide independent inspections and a factual report as and when requested to assist the client in gaining regulatory approval with regards to the gas membrane installation. This is as per the scope of work section within our term's engagement.

### 1.2 Limitations

This report is limited to providing lines of evidence to the regulatory authority for the areas components inspected by MEC only in support of the discharging of the relevant planning conditions only and cannot be used or relied upon for any other purpose. No professional liability shall be extended to any other parties by MEC, the report should explicitly not be relied on by any future vendor or tenant as proof that the gas protection measures are sufficient for the site and functioning at the time of purchase or start of any tenancy. Gas protection systems are not solely reliant on the gas membrane as points are scored under BS8485 for the floor slab, membrane and venting, these components work collaboratively to provide a gas protection system. This is as per the conditions within our term's engagement.

The report has been provided on the assumption that no damage or works that may have compromised the components and integrity of the gas membrane have been made after our inspections, failure to report any such occurrences will invalidate any liability and render the report and contents invalid. This is as per the conditions within our term's engagement.

This report has been prepared in accordance with the best available practice and the relevant guidance documents listed below of which the author of the report was a contributor and member of the steering committees:

**Mallett H, Wilson S, Corban M (2014)** "Good practice on the testing and verification of protection systems for buildings against hazardous ground gases". CIRIA Report C735

### 1.3 Compliance with Regulation 7 of Building Regulations

Regulation 7 of the building regulations requires that building work shall be carried out in a workmanlike manner. Approved document 7 suggests installation can comply with the regulation if workmanship is such that, where relevant, materials are adequately mixed or prepared and applied, used or fixed so as to perform adequately the functions for which they are intended.

A reasonable standard may be demonstrated by:

Compliance with a standard and independent certification - The relevant standard for gas protection measures is BS8485:2015 +A1:2019, Table 7 of the standard requires that gas membranes are verified as per CIRIA C735.

Past experience – The installers qualifications are checked by MEC Environmental to ensure that the installation supervisor holds the NVQ Level 2 in gas membrane installations.

Integrity Testing methods. – are carried out as prescribed in CIRIA C735, unless stated elsewhere  
Frequency of Visits – MEC have not been employed to prepare a validation plan for this project, the frequency of visits is as per the instructions of the client, in essence MEC inspected the available membrane that could be inspected each time an inspection visit was requested. The area inspected on each visit is noted on the survey sheets in appendix 1. This report should be read in conjunction with the installers CQA report.

### 1.4 Method of Inspection (Per Visit)

All seams and non-seam areas of the available gas membrane were inspected/tested by the Validation Surveyor for identification of defects, protruding and penetrating objects, lack of subgrade support, overheating, holes, blisters, undispersed raw materials, scratches and gouges, and any sign of contamination by foreign matter.

Any portion of the gas membrane exhibiting a flaw or failing a visual inspection/testing was repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure was agreed upon between the Validation Consultant and the Installer at the time of the repair and is noted in the survey sheets.

Major repairs are visually inspected/tested, repairs passing the inspection/testing were considered acceptable. In some cases minor repairs maybe carried out under contractor CQA and photographic evidence supplied to the verifier for inclusion in the report.

## 1.5 MEC Staff Competency

All site inspections have been carried out by suitably qualified staff as defined in CIRIA C735, the qualification held by all MEC inspection surveyors is either the NVQ Level 4 in gas protection verification or the NVQ Level 2 in gas membrane installation

The author of this report is also a CL:AIRE accredited Specialist in Gas Protection Verification (SGPV) and holds both the NVQ Level 2 in gas membrane installation and the NVQ Level 4 in gas protection verification.

## 1.6 Conclusion

During our inspections to the areas denoted in Appendix 1 (Site Surveys Sheets) we witnessed the installer carrying out the installation in a workmanlike manner, the materials were adequately prepared and applied, used and fixed so as to perform adequately the functions for which they are intended as per Regulation 7 of the building regulations. In instances where 100% of the installation has not been independently inspected/tested then this report should be read in conjunction with the gas membrane installers CQA records.

The installers all hold the NVQ Level 2 "Gas membrane Installations" qualification and as such are classed as a qualified and experienced installer. MEC Environmental have checked the CSCS Trade Cards of the installers, which confirms the holder has attained the qualification.

Signed



Date: 11/11/2022

Michael Corban S.G.P.V.  
Director  
MEC Environmental Ltd

## Appendix 1 – Site Survey Sheets

|                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                       |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Site name: Woodside Road, Eastleigh, Southampton.</b><br><b>(Woodside Avenue)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Units/ plots checked: Unit 3/4 Lift Pit Wrapped (see marked drawing below)</b> |                                                                                       |
| <b>Postcode: SO50 4ET</b>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                       |
| <b>Installers Name: MB Membranes</b>                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                       |
| <b>Date: 17/10/2022</b>                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                       |
| <b>Inspection by: James Hall</b>                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Weather: 17°C Fine / Dry</b>                                                   |                                                                                       |
| <b>Item</b>                                                                          | <b>Comments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                       |
| Sub-floor void                                                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |                                                                                       |
| Ventilation Inlets and Outlets                                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |                                                                                       |
| Number Of Vents                                                                      | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |                                                                                       |
| Materials used:                                                                      | Membrane – Juta GP SAM 1m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                                       |
|                                                                                      | Self-Adhesive Membrane <input checked="" type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Preformed Top hats <input type="checkbox"/> Yes                                   |                                                                                       |
|                                                                                      | Double Sided Butyl Tape <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Preformed Corners <input type="checkbox"/> Yes                                    |                                                                                       |
|                                                                                      | Others Please List: Juta GP Primer / Juta TitanBond                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |                                                                                       |
| Installation Notes                                                                   | <p><b><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></b></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard.</p> <p>The installation team have primed the concrete using Juta GP Primer with the continuous coverage. Once cured they have successfully installed Juta GP SAM 1m to the lift pit wrap. All heat sealed using a hot air tool or using an LPG hand burner with roller pressure applied ensuring the seal throughout.</p> |                                                                                   |                                                                                       |
| Type of Joint                                                                        | Tape Joint <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Auto Weld <input type="checkbox"/>                                                | Hand Weld <input checked="" type="checkbox"/> Extrusion Weld <input type="checkbox"/> |
| Jointing/Detailing Testing                                                           | <input type="checkbox"/> Air Lance (ASTM D4437)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   | <input checked="" type="checkbox"/> Probe Test (ASTM D4437)                           |
| Laps, welds and detailing<br>Ventilation Inlets & Outlets                            | Have all joints passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Yes                                           | <input type="checkbox"/> No <input type="checkbox"/> N/A                              |
|                                                                                      | Have all pipes passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Yes                                                      | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                   |
|                                                                                      | Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> Yes                                                      | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |                             |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-----------------------------------------|
| Have all piles and pile caps passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| Has all other detailing work passed inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            |
| <p><b><u>(List any defects to detailing work and joints):</u></b></p> <p>During our inspection the following defects and repairs were carried out: N/A</p> <p>Have any defects identified above been satisfactorily rectified <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</p> <p>The Area has passed inspection <input checked="" type="checkbox"/></p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor <input type="checkbox"/></p> <p>The Area is incomplete as detailed above <input type="checkbox"/></p> <p>Signed: <b>James Hall</b> Date: <b>17/10/2022</b></p> |                                         |                             |                                         |

Area Inspected

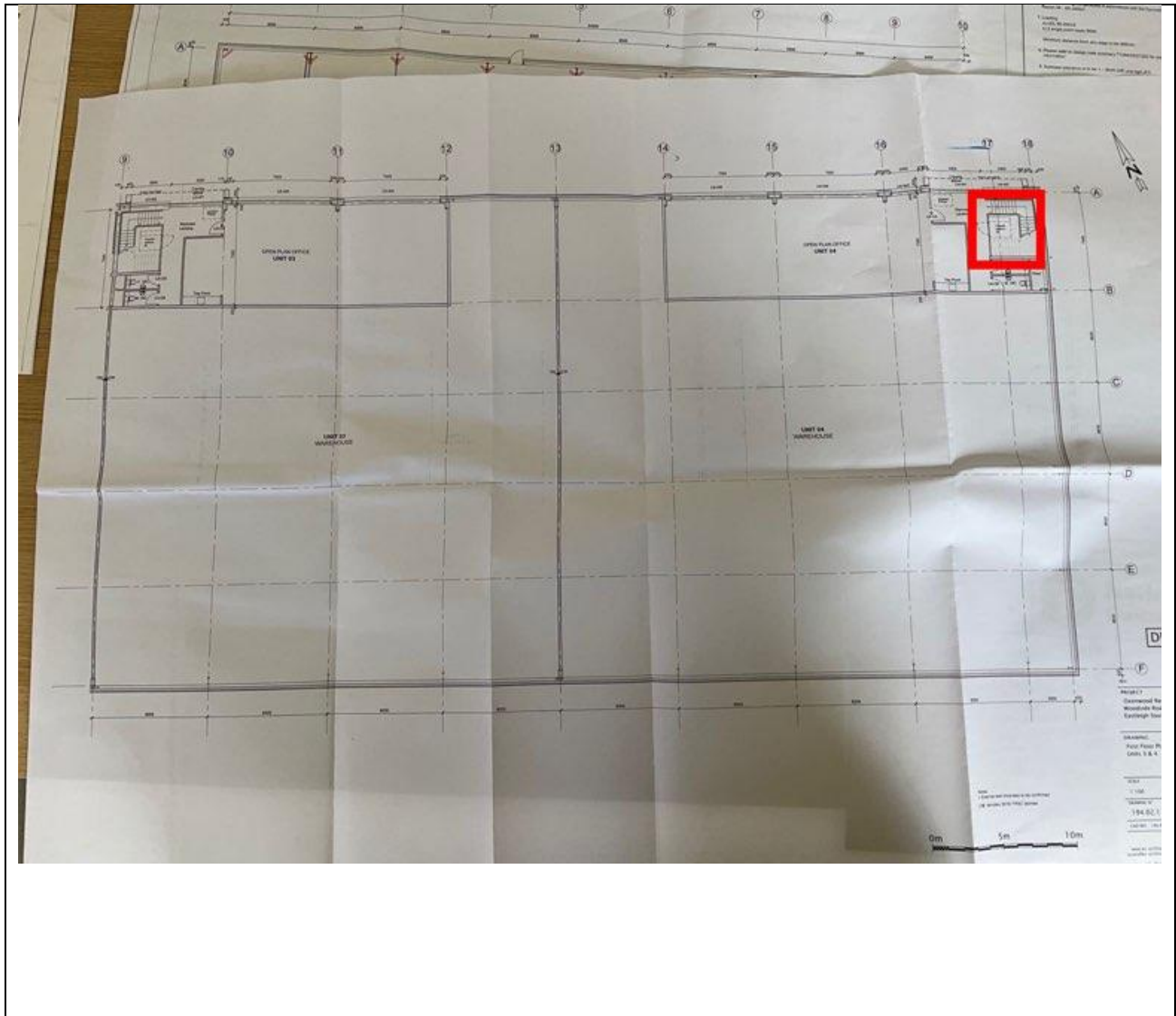


Photo 17/10/2022



Unit 3/4. Overview of Lit pit wrap installation.



Unit 3/4. Overview of the installation of Juta GP SAM to lift pit.



Unit 3/4. Pick test conducted membrane lap joint.



Unit 3/4. Pick test upon termination of Juta GP SAM.



Unit 3/4. Juta GP SAM successfully terminated upon previously installed Juta TitanBond base.



Unit 3/4. Pick test upon termination between membranes.



Unit 3/4. Juta GP SAM sealed continuously to lift pit wrap.

|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |                                                                                       |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Site name: Marbank, Woodside Road, Eastleigh, Southampton. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Units/ plots checked: Unit 5, line out to perimeter & under the mezzanine floor area.( see marked plan below). |                                                                                       |
| Postcode: SO50 4ET.                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |                                                                                       |
| Installers Name: MB Membranes.                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |                                                                                       |
| Date: 08/11/2022                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |                                                                                       |
| Inspection by: Adam Mcdermott                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Weather: 13°C Dry.                                                                                             |                                                                                       |
| Item                                                       | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                |                                                                                       |
| Sub-floor void                                             | N/A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                |                                                                                       |
| Ventilation Inlets and Outlets                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                |                                                                                       |
| Number Of Vents                                            | N/A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                |                                                                                       |
| Materials used:                                            | Membrane – Juta GP1 gas membrane.                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                |                                                                                       |
|                                                            | Self-Adhesive Membrane <input checked="" type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                   | Preformed Top hats <input type="checkbox"/> Yes                                                                |                                                                                       |
|                                                            | Double Sided Butyl Tape <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                             | Preformed Corners <input type="checkbox"/> Yes                                                                 |                                                                                       |
|                                                            | Others Please List: N/A.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                |                                                                                       |
| Installation Notes                                         | <p><b><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></b></p> <p>MEC Environmental carried out a thorough visual inspection of the Juta GP1 gas membrane that has been installed under the mezzanine floor area and around the perimeter of unit 5, sealing all pipe penetrations, corners, steel stanchions and to the perimeter steel channel as a retro fit detail using SAGM.</p> |                                                                                                                |                                                                                       |
| Type of Joint                                              | Tape Joint <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                              | Auto Weld <input type="checkbox"/>                                                                             | Hand Weld <input checked="" type="checkbox"/> Extrusion Weld <input type="checkbox"/> |
| Jointing/Detailing Testing                                 | <input type="checkbox"/> Air Lance (ASTM D4437)                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                | <input checked="" type="checkbox"/> Probe Test (ASTM D4437)                           |
| Laps, welds and detailing<br>Ventilation Inlets & Outlets  | Have all joints passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> Yes                                                                        | <input type="checkbox"/> No <input type="checkbox"/> N/A                              |
|                                                            | Have all pipes passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes                                                                        | <input type="checkbox"/> No <input type="checkbox"/> N/A                              |
|                                                            | Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes                                                                        | <input type="checkbox"/> No <input type="checkbox"/> N/A                              |
|                                                            | Have all piles and pile caps passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Yes                                                                                   | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                   |
|                                                            | Has all other detailing work passed inspection                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> Yes                                                                        | <input type="checkbox"/> No <input type="checkbox"/> N/A                              |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b><u>(List any defects to detailing work and joints):</u></b></p> <p>During our inspection the following defects and repairs were carried out: N/A.</p> <p>Have any defects identified above been satisfactorily rectified <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</p> <p>The Area has passed inspection <input checked="" type="checkbox"/></p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor <input type="checkbox"/></p> <p>The Area is incomplete as detailed above <input type="checkbox"/></p> <p>Signed: <b>Adam Mcdermott</b> Date: <b>08/11/2022</b></p> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Overview of installed membrane to the perimeter of using 5.



Overview of installed membrane under the mezzanine floor area.



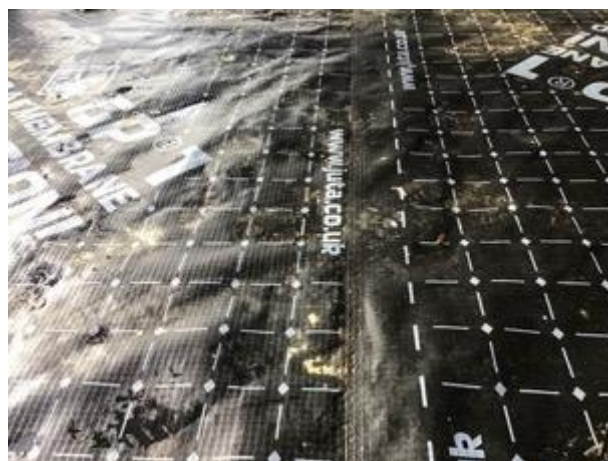
Typical stanchion seal using SAGM.



Typical pipe penetration seal using SAGM.



Pick testing all SAGM detailing.



Hand welded membrane lap.



Retro fit detail using SAGM to the perimeter steel channel.

|                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                 |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------|
| <b>Site name: Woodside Road, Eastleigh, Southampton. (Woodside Avenue)</b><br><br><b>Postcode: SO50 4ET</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Units/ plots checked: Unit 5 - Pour 2 of 2 - (see marked drawing below)</b> |                                                 |
| <b>Installers Name: MB Membranes</b>                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                 |
| <b>Date: 11/11/2022</b>                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                 |
| <b>Inspection by: James Hall</b>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Weather: 15°C Dry/Overcast</b>                                              |                                                 |
|                                                                                                             | <b>Item</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Comments</b>                                                                |                                                 |
|                                                                                                             | Sub-floor void                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |                                                 |
|                                                                                                             | Ventilation Inlets and Outlets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |                                                 |
|                                                                                                             | Number Of Vents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                            |                                                 |
|                                                                                                             | Materials used:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Membrane – Juta GP1 Gas Barrier                                                |                                                 |
|                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Self-Adhesive Membrane <input checked="" type="checkbox"/> Yes                 | Preformed Top hats <input type="checkbox"/> Yes |
|                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Double Sided Butyl Tape <input checked="" type="checkbox"/> Yes                | Preformed Corners <input type="checkbox"/> Yes  |
|                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Others Please List: N/A                                                        |                                                 |
| Installation Notes                                                                                          | <b><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></b><br><br>MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard.<br><br>The installation team have line Juta GP1 Gas Barrier across the footprint of the pour area. This was laid upon the rolled sand blinded substrate base. All membrane lap joints were auto welded and hand welded with rolled pressure applied. All steel stanchions were sealed using SAGM and heated. Termination to the perimeter screed rail was achieved by retrofitting SAGM upon the screed rail and returning on the Juta GP1 Gas Barrier. The armoured joint pin's were left in and installers have placed a continuous band of double sided butyl tape around.<br><br>Marked up drawing key :<br>Area in yellow is the full pour area.<br>Area in red is the completed membrane work inspected during our visit.<br><br>Site installed miothene strips surrounding all steel stanchions prior to the concrete pour. |                                                                                |                                                 |

|                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                                                             |                                         |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|-----------------------------------------|
|                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                                                             |                                         |
| Type of Joint                                             | Tape Joint <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Auto Weld <input checked="" type="checkbox"/> | Hand Weld <input checked="" type="checkbox"/>               | Extrusion Weld <input type="checkbox"/> |
| Jointing/Detailing Testing                                | <input type="checkbox"/> Air Lance (ASTM D4437)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               | <input checked="" type="checkbox"/> Probe Test (ASTM D4437) |                                         |
| Laps, welds and detailing<br>Ventilation Inlets & Outlets | Have all joints passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> Yes       | <input type="checkbox"/> No                                 | <input type="checkbox"/> N/A            |
|                                                           | Have all pipes passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes                  | <input type="checkbox"/> No                                 | <input checked="" type="checkbox"/> N/A |
|                                                           | Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Yes       | <input type="checkbox"/> No                                 | <input type="checkbox"/> N/A            |
|                                                           | Have all piles and pile caps passed testing prior to surveyor leaving site?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Yes                  | <input type="checkbox"/> No                                 | <input checked="" type="checkbox"/> N/A |
|                                                           | Has all other detailing work passed inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> Yes       | <input type="checkbox"/> No                                 | <input type="checkbox"/> N/A            |
|                                                           | <p><b><u>(List any defects to detailing work and joints):</u></b></p> <p>During our inspection the following defects and repairs were carried out: N/A</p> <p>Have any defects identified above been satisfactorily rectified <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</p> <p>The Area has passed inspection <input checked="" type="checkbox"/></p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor <input type="checkbox"/></p> <p>The Area is incomplete as detailed above <input type="checkbox"/></p> <p>Signed: <b>James Hall</b> Date: <b>11/11/2022</b></p> |                                               |                                                             |                                         |

Area Inspected

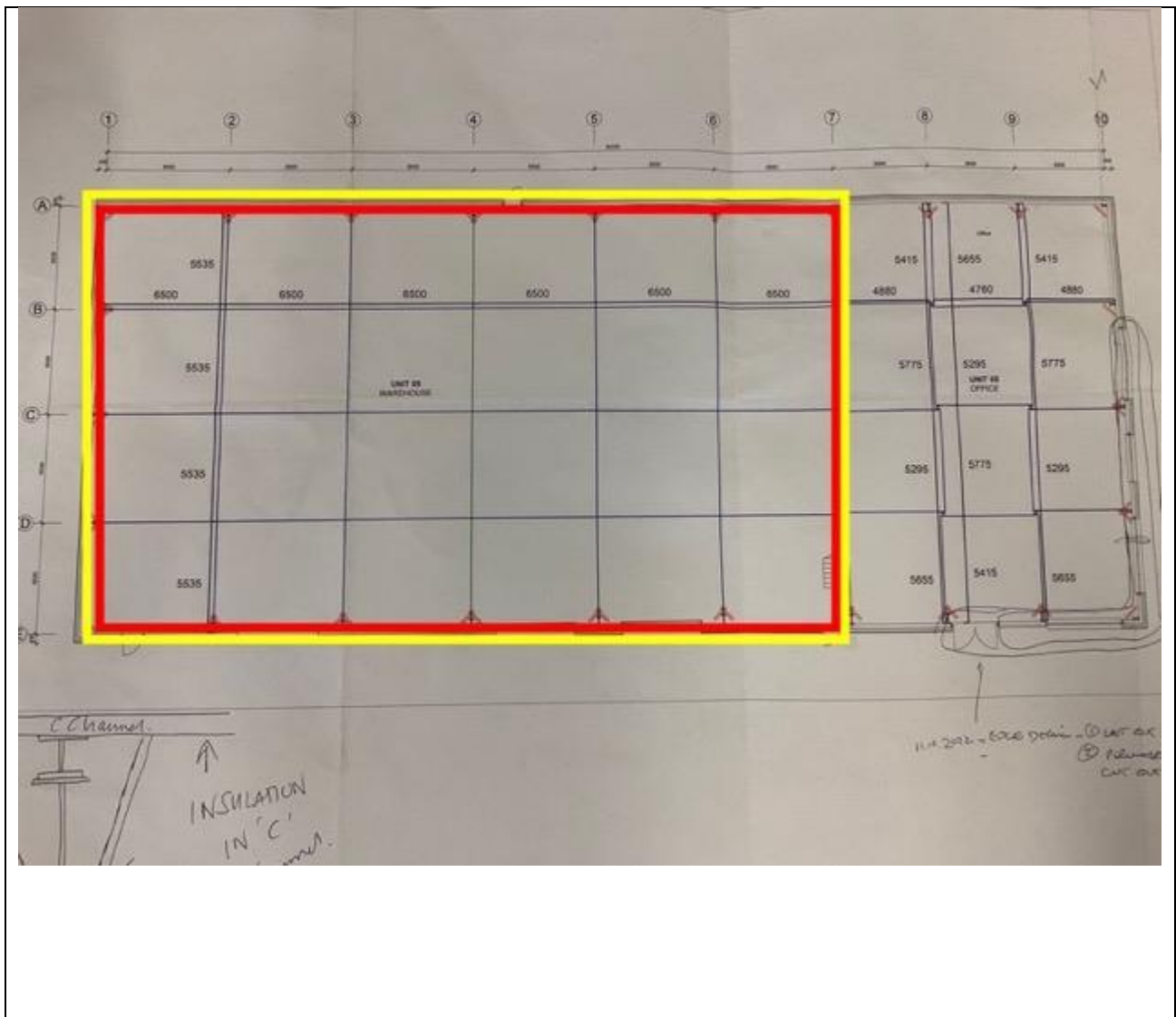


Photo 11/11/2022



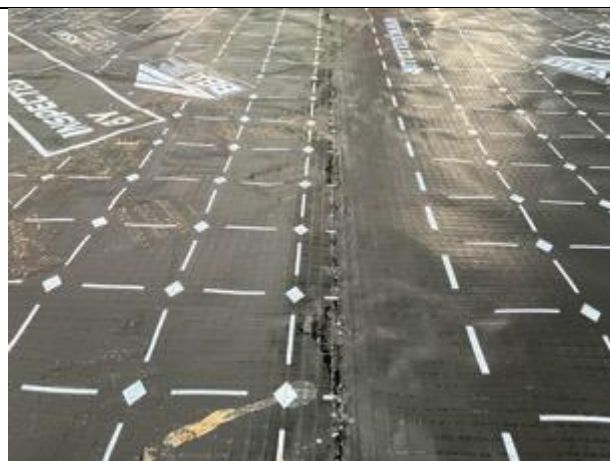
Overview of the full footprint installation of Juta GP1 Gas Barrier.



Overview of the installation of Juta GP1 Gas Barrier.



Auto welded membrane lap joint.



Hand welded membrane lap joint.



Termination detailing to the perimeter screed rail using SAGM.



Typical steel stanchion sealed using SAGM



Pick test conducted upon a hand welded membrane lap joint.



Patch repair using SAGM.



Pick test upon a auto welded membrane lap joint.



Armoured joint pin's left in and a continuous band of double sided butyl tape wrapped around.



Pick test upon a sealed steel stanchion.

**From:** [Patrick Flood](#)  
**To:** [Manderfield, Charlie](#)  
**Cc:** [Billy Shinnars](#)  
**Subject:** RE: Juta Membrane Radon  
**Date:** 15 September 2023 10:33:16  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[image007.png](#)  
[GP1-SAM-BBA-1.pdf](#)

---

Morning Charlotte,

Many thanks for touching base. We're pleased to confirm the GP\*1 SAM can be used to mitigate the passage of damp/water, Radon and bulk ground gases.

I've attached a copy of the BBA certificate for reference which confirms certification against these application scenarios also.

My colleague Billy in copy is based in London – I wonder if it is worth calling in at some point by way of introduction?

Any issues – do not hesitate to get in touch.

Best regards

**Patrick Flood**  
Technical Director

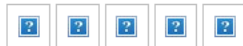


**Juta UK Ltd, Melton Grove Works, Blackpool Road, Lytham FY8 5PL**

**Tel. 01772 754177**

**Mob. 07494 395922**

[www.juta.co.uk](http://www.juta.co.uk)



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**From:** "Manderfield, Charlie" <[Charlie.Manderfield@colliers.com](mailto:Charlie.Manderfield@colliers.com)>

**Date:** 15 September 2023 at 10:23:25 BST

**To:** Info Juta <[info@juta.co.uk](mailto:info@juta.co.uk)>

**Subject:** Juta Membrane Radon



IRONSCALES couldn't recognize this email as this is the first time you received an email from this sender [Charlie.Manderfield@Colliers.com](mailto:Charlie.Manderfield@Colliers.com)

Hi,

Please could you confirm that the attached product protects against radon as well as ground gases?

Kind regards,

**Charlotte Manderfield**

Principal Geo-Environmental Consultant | Environmental

**Colliers**

**07721 628651**

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## APPENDIX 7: EXTENT OF SURVEY AND LIMITATIONS

# Extent of Survey and Limitations

Section 1 shall apply to all our appointments. The relevant sections 2 to 8 will only apply where the terms of our appointment state we are providing the corresponding service. For example, where we are appointed to provide a pre-acquisition survey, sections 1 and 2 below will apply to that appointment.

## 1. Standard Limitations

**Inspection and Concealed Parts:** Our report will cover all parts of the site made available to us during our visual inspection of the property, which is normally and safely accessible without the use of ladders, and therefore exclude all ceiling, wall and floor voids unless stated within the report. Where inspection of roof areas by use of access hoists or a drone is required this will be agreed with you prior to inspection. The structure and fabric will not be opened up for further investigation. Those parts of the building and engineering services that are concealed, inaccessible or covered will not be inspected and confirmation that such parts are free from defects cannot be provided. Where we feel further investigation is merited, reference will be made in our report. Our services survey is based on a visual inspection and comment on the condition and the quality of the installation relating to normal good standards. We will specifically exclude tests relating to the performance of any heating, air conditioning or ventilation systems, pipe pressure tests, electrical or drainage tests. The omission of such tests might give risks to the fact that certain problems could exist which are not reflected in our report. No inspection or comment is made on the below ground drainage installations or service conduits unless instructed otherwise.

**Occupied Buildings:** Where buildings are occupied at the time of our inspection access to some areas may be restricted or denied although these areas will be noted in our report. Regardless of occupation, we will not lift fitted carpets, nor disturb any part of the fabric or fittings which are fixed or may cause damage.

**Budget Costs:** Where budget costs are included in our report, these costs are for guidance purposes only and will not be calculated from measured quantities but will be based on knowledge and experience of similar repair or replacement situations. Costs are inclusive of contractor's preliminaries but exclusive of all contingencies, professional fees and VAT. They will be based on current prices and no allowances will be made for inflation. Access costs for high level works will be included. There will be no allowances for loss or damage as a result of force majeure, terrorism, discovery or removal of any deleterious materials or out of hours working. Estimates are not to be thought of as a substitute for obtaining competitive quotations from reputable contractors. We will not investigate whether the cost of carrying out all necessary works immediately will be

different in cost to carrying them out individually, as and when required.

**Specialist Sub-Consultants / Sub-Contractors:** Where specialist consultants or contractors are engaged on your behalf. We may make reference to their findings in our report, but this should not be considered as a substitute for reading their report in its entirety, nor can we take responsibility for their conclusion.

**Compliance with Legislation:** In respect of planning permissions and building regulations consents we will review relevant documentation made available to us and liaise with your lawyers in this regard. If documentation is missing we will record this as a risk in our report, as should your lawyer. Our inspection will involve a review of the state of compliance with Statutory Requirements such as Workplace Regulations, Fire Regulations, Equality Act and other relevant matters. We will provide general comments on these matters in our report. Please note that compliance with these Regulations often requires a more detailed specialist study and / or the preparation of a risk assessment. Such studies and risk assessments are beyond the scope of our report. Where appropriate we will make recommendations for further specialist surveys.

**Weather conditions:** Our inspection may be restricted by the prevailing weather conditions at the time of our inspection.

**Communicable Disease** – we shall not be liable in respect of any Claim, circumstance, loss or Defence Cost that arise as a result of, or is connected in any way, directly or indirectly with;

- a) A *Communicable Disease* or the fear or threat (whether actual or perceived) of a *Communicable Disease* regardless of any other cause or event contributing concurrently or in any other sequence thereto;
- b) any action taken to control, prevent, isolate, quarantine, suppress, mitigate or in any way relating to any actual or suspected outbreak of any *Communicable Disease* or the fear or threat (whether actual or perceived) of a *Communicable Disease*;
- c) instructions, orders, requests, restrictions or limitations given by any national or local government, regulatory or statutory body, health authority or organisation relating to any *Communicable Disease*.

A *Communicable Disease* means any disease which can be transmitted by means of any substance, medium or agent from any organism to another organism where:

- i. the substance, medium or agent includes, but is not limited to, a virus, bacterium, parasite or other organism or any variation thereof, whether deemed living or not, and
- ii. the method of transmission, whether direct or indirect, includes but is not limited to, airborne transmission, bodily fluid transmission, transmission from or to any surface or object, solid, liquid or gas or between organisms, and
- iii. the disease, substance or agent can cause or threaten damage to human health or human welfare or can cause or threaten damage to, deterioration of, loss of value of, marketability of or loss of use of property.

**Reliance and disclosure:** The issued findings or reports following our inspection are for the addressee's use only and no liability will be accepted to any third party. Neither the whole or any part of the report may be published or disclosed to a third party without our prior written approval.

### Deleterious and Hazardous Materials

**Generally:** Our report and survey excludes any investigation into the unsuitable use of deleterious or hazardous materials except in so far as such matters may come to our knowledge in the normal course of inspecting the property and state of repair. We will advise you if we consider there is a significant possibility that deleterious or hazardous materials exist at the property, although we will not undertake or commission specific inspections, laboratory testing or reports unless this possibility has been raised by us as a concern and further instructions received which in any event will be confined to the following: admixtures / aggregates in concrete, asbestos, brick slips, calcium silicate brickwork, high alumina cement, lead, urea formaldehyde foam, woodwool cement slab (used as permanent shuttering), aluminium composite panels, thin stone panels.

Many factors including location, use, design and quantity determine whether a material is deleterious or not and, therefore, the inclusion in the material in the above list does not, of itself, imply that it is deleterious.

As a result of the Grenfell tower fire in 2017, external cladding systems including the materials used in them remain under intense scrutiny. There continues to be wide-ranging discussions in the Construction Industry over the use of combustible cladding materials, particularly (but not limited to) to buildings in excess of 18m in height or over 6 storeys. In our report, we will report on the suspected use of any combustible materials where this can be ascertained from a review of as-built information, or if it is suspected from our inspection. However, it may not be possible to ascertain purely from a visual inspection the presence or not

of combustible materials and we cannot be held liable for not identifying their presence in such circumstances.

Where composite cladding panels may be identified in our report we confirm that no intrusive testing will be undertaken to determine the type of insulation, classification of the insulating core or whether this is approved by the Loss Prevention Certification Board (LPCB) unless instructed otherwise.

**Concrete:** Where instructed to undertake a concrete investigation, our specialist report will be based on a visual examination of the concrete structure in sample test locations only. Whilst such test locations are chosen to be representative of the structure as a whole, we are not able to confirm that the structure is free from structural defects other than deleterious effect of HAC, chlorides and reinforcement corrosion durability.

**Asbestos:** Where instructed to undertake a specialist asbestos survey, we cannot guarantee that all asbestos containing materials will be identified, despite the best endeavours of our asbestos sub-consultant. Where instructed, every effort will be made to remove representative samples however it is possible that indiscriminate uses of asbestos may be present between sample locations of otherwise visually similar materials. An asbestos management survey is non-destructive and includes an inspection within accessible ceiling voids, above loose laid removable tiles, inside openable risers and cupboards, within accessible risers and behind removable casings.

Similarly access within lift shafts, live electrical equipment and mechanical plant may be restricted. A Refurbishment and Demolition asbestos survey is destructive and includes an inspection within accessible ceiling voids, above loose laid removable tiles, inside openable risers and cupboards, within accessible risers and behind removable casings. Representative areas of each element of building fabric will be intrusively opened up to inspect for the presence of ACM's behind built-in ducts, voids or similar enclosed or concealed areas within the building fabric. No intrusive work will be undertaken within the structural framework, concrete floors and masonry walls.

**Environmental issues:** Save where we are commissioned to provide environmental services (in which case the relevant section of this document shall apply), the following applies. We will not carry out nor commission formal enquiries or tests relating to potential soil or ground contamination, or the ground bearing conditions of the site or neighbouring land. We will not carry out any searches with statutory bodies to establish any mining or landfill issues, and associated potential subsidence risk as a result of historic site operations. Whilst we will comment on any potential contamination issues apparent from our survey, our report will not constitute an environmental report. You are advised to procure your own environmental reporting, but we will be happy to arrange audits, reports or tests on your behalf, by specialist consultants, who are to be directly appointed by you, if required. You should ensure that your

solicitors obtain as much information as possible about the prior use of the land. Such information should be revealed to us as soon as possible as it may materially affect our/or the consultant's advice to you. Such advice may include recommendations for testing or obtaining a warranty.

We have no liability in relation to the presence of low frequency electronic fields, radiation, toxic mould, and the presence of Japanese Knotweed or other invasive plant species as defined in the Wildlife and Countryside Act 1981 or the Environmental Protection Act 1990. We may however note their apparent presence for investigation by others as appropriate.

### Mechanical and Electrical Surveys

**Generally:** Our survey and report is compiled under the brief to visually inspect and comment on the condition and the quality of the installation relating to normal good standards in the building services industry as dictated by CIBSE and IEE's current recommendations and standards without testing or dismantling of the plant. Where appropriate, we have provided an overview of the lift installations, which was carried out by the attending building services consultant.

**Budget Costs:** Any costs indicated within this report are based on our best assessment of the situation and the work involved at current prices and should not be taken as firm costs for the items of work detailed. To provide more accurate costs an investigation will be required in greater detail for individual items of the plant and systems, and may involve the employment of specialists where appropriate.

This overview provides a description of the lift services and general condition other than inspection of the lift shafts and associated equipment.

There are occasions when the building services will be inspected by a building surveyor rather than a mechanical and electrical consultant and we will advise within the fee quotation. In this case, if you require a survey by a mechanical and electrical consultant, you should confirm this prior to our inspection.

**Concealed Parts:** We have not inspected parts of the Engineering Services which are encased, covered up, or otherwise made inaccessible in a normal course of construction, alteration, or fitting out. We will not carry out any internal inspection of the plant/systems.

**Design Analysis:** No definitive calculations have been undertaken to determine the capacity or performance of the plant items, nor have performance tests been carried out on any of the systems or plant items. Design analysis of the systems has been undertaken using generally accepted design criteria both past and present, primarily to establish the principles of design. We have specifically excluded tests relating to the performance or efficiency of any heating, air conditioning, or ventilation systems, pipe pressure tests,

electrical or drainage tests. The omission of such tests might give rise to the fact that certain problems could exist which are not reflected in this report. We would point out that during the course of our building services survey we did not carry out an inspection of the below ground services.

**Deleterious & Hazardous Materials:** Our report and survey excludes any investigation into structural engineering design, compliance with legislation relating to buildings, or the unsuitable use of high alumina cement or calcium chloride, calcium silicate brickwork, alkali-silicate reaction in concrete, cavity wall tie failure, radon gas seepage, woodwool slab permanent shuttering, asbestos or PCB's or other materials considered as deleterious in construction, except insofar as such matters may come to knowledge in the normal course of inspecting the materials and state of repair.

**White Goods & Data:** This report does not include an inspection of the white goods, catering and vending equipment, telecommunication, data or wireless systems installed within the property. We are unable to comment, advise or identify items that are reliant on day/date dependent embedded chips.

### Rights of Way / Support / Light

Where necessary we will comment on apparent rights of way / support or light which may be visible or suspected albeit our comments will be outline in nature and without any detailed investigations.

## 2. Pre Acquisition Survey

**Compliance with Legislation:** Our inspection will involve a general review of the state of compliance with Statutory Requirements such as the Building Regulations, Workplace Regulations, Fire Regulations, Equality Act and other relevant matters applicable within the relevant country. Please note that compliance with these Regulations often requires a more detailed specialist study and/ or the preparation of a risk assessment. Such studies and risk assessments are beyond the scope of our report.

## 3. Environmental

**Desk Based Risk Assessment:** The risk assessment is dictated by the finite data on which it is based and is relevant only for the purpose of which the report is commissioned. If additional information or data becomes available which may affect the opinions expressed in our report, we reserve the right to review such information and, if warranted, to modify the risk assessment accordingly. We reserve the right to charge an additional fee for un-anticipated second opinion reviewing of previous reports.

The survey excludes intrusive opening up of the building fabric. Accordingly, an inspection is not undertaken behind built-in ducts, voids or similar enclosed or concealed areas within the structure and fabric.

**Compliance with Legislation:** The environmental risk assessment will be undertaken with due regard to Contaminated Land Guidance documents (available and relevant at the time of issuing our report) issued by (but not limited to) the Environmental Protection Act Part IIA 1990, Department for Environment, Food and Rural Affairs (DEFRA) and its predecessors, the Environment Agency (and its devolved equivalents), British Standards Institute (BSI), the Royal Institution of Chartered Surveyors (RICS) and the American Society for Testing and Materials (ASTM) Standard E 1527-00. No liability can be accepted for the effects of any future changes to such guidelines and legislation. In the event that guidance / legislation changes it may be necessary for us to update or modify reports.

**Content of Report:** Our Phase I Environmental Audit will be based on a visual inspection of the site, a review of available historical and environmental setting records, consultations with site representatives, pertinent information provided from the client and regulatory consultations. No samples will be taken as part of this study.

**Generic Risk Assessment:** The risk assessment is dictated by the finite data on which it is based and is relevant only for the purpose of which the report is commissioned. If additional information or data becomes available which may affect the opinions expressed in our report, we reserve the right to review such information and, if warranted, to modify the risk assessment accordingly. We reserve the right to charge an additional fee for un-anticipated second opinion reviewing of previous reports.

The survey excludes intrusive opening up of the building fabric. Accordingly, an inspection is not undertaken behind built-in ducts, voids or similar enclosed or concealed areas within the structure and fabric. Where necessary we will comment on apparent rights of way / support or light which may be visible or suspected albeit our comments will be outline in nature and without any detailed investigations.

### Phase 2 Site Investigation

**Content of report:** The content and findings of the report will be based on data obtained by employing site assessment methods and techniques, considered appropriate to the site as far as can be interpreted from desk based materials and a visual walkover of the site. Such techniques and methods are subject to limitations and constraints set out in the report. The findings and opinions are relevant at the time of writing, and should not be relied upon at a substantially later date as site conditions can changes. For example, seasonal groundwater levels, natural degradation of contaminants etc. No liability is accepted for areas not covered by the investigation.

**Risk Assessment:** The opinions and findings conveyed via the report will be based on information obtained from a variety of sources as detailed by the report. The information should not be treated as exhaustive but is, in good faith, considered as representative as possible of the site conditions when considering constraints set out by the

report. The risk assessment will be completed in line with current industry practices but is not a guarantee that the site is free of hazardous conditions. The risk assessment is completed in line with the relevant land use agreed for the site and the time of completing the works. Changes to site conditions or land use may require a reassessment.

**Unforeseen Contamination:** Where Colliers is responsible for directing the number and location of exploratory holes, it shall exercise all the reasonable skill, care and diligence to be expected of a properly qualified and competent member of the Consultant's profession experienced in performing such services, taking into account site conditions, and available knowledge, as well as access, budgetary and scheduling constraints. Subject to having complied with the foregoing: (1) no liability can be accepted for the conditions that have not been revealed by the exploratory hole locations, or those which occur between each location and (2) whilst every effort will be made to interpolate the conditions between exploratory locations, such information is only indicative and liability cannot be accepted for its accuracy. By their nature, it is generally the case that exploratory holes provide a relatively small and localised snapshot of the ground conditions relative to the size of the site.

**Buried Services:** Whilst reasonable efforts will be taken to avoid buried services, we accept no liability for damage to services which have not been accurately identified in advance of site works.

**Flooding:** Our commentary is only based on the publicly available mapping available via the EA, NRW or SEPA at the time of writing and we cannot accept any liability where the information is updated following the issue of our report.

## 4. Dilapidations

**Generally:** We will assume unless otherwise requested that we are engaged as an advisor to prepare or comment on a schedule or claim which is distinct from an instruction to act as an expert witness. However, in discharging the advisory role it is always necessary for us to take account of considerations relating to expert witnesses as set out in the current Practice Statement and Guidance Note for Surveyors Acting as Expert Witnesses by the Royal Institute of Chartered Surveyors, a copy of which can be provided on request. This states that the primary function, and duty, of an expert witness is to assist the court on matters within their expertise.

**Ongoing Advice:** Our dilapidations advice aims to provide you with an informed opinion as to the anticipated level of liability/claim. Changes in case law, statute and the passage of time may affect the accuracy of our advice; it is therefore important that our advice is reviewed at regular intervals and, in particular, prior to the expiry of the lease.

**Documentation Provided:** Our assessments can only be as accurate as the information provided to us; it is therefore

important that the most complete set of documentation possible is provided in order for the best advice to be given. We cannot take any responsibility for distorted findings resulting from deficient, incorrect or incomplete information.

**Estimated Settlement:** When an estimate of settlement is provided at any time prior to concluding the claim, this is for guidance only and should never be taken as a definitive evaluation of the likely damages which may fall due.

**Final Settlement:** Settlements can be limited by S.18(1) of the Landlord & Tenant Act 1927 and the common law principles to the diminution in the value of the Landlord's reversion, regardless of the cost of works and other heads of claim. We will advise you if we consider that a formal valuation (commonly known as a Section 18 valuation) is necessary.

A claim based on the cost of the works may also be capped or even extinguished if it can be shown that the premises are to be altered or demolished after the expiry of the lease. Landlords should advise us if this is the case. Again, we will advise you if we consider that a Section 18 valuation is necessary. Where no formal release is provided by a Landlord we reserve the right to charge on a time expended basis.

**Solicitors:** In some cases it may be necessary to liaise with a solicitor on matters of strict legal interpretation. In the event of litigation, our communications with surveyors and other experts, including solicitors, may not be privileged.

Your legal advisors need to advise you on compliance with break notices as we only look at dilapidation liabilities under a lease and there may be other liabilities which impact on the break such as vacant possession, payment of rent, etc. Your legal advisors will be responsible for service of any schedules / notices. If you do not use a lawyer then we cannot accept any liability for incorrect service of schedules / notices.

Your legal advisors will be responsible for agreeing the wording of any forms of release used to record agreement on a financial settlement. If you do not use a lawyer then we cannot accept any liability for incorrect wording in helping to conclude matters between parties.

### Heads of Claim

**Loss of Rent, Rates, Service Charge, etc.:** For the purposes of the calculation of a loss of rent (and where applicable, service charge) claim we will provide an assessment of the period that it is likely to take to procure and complete works identified in the Schedule of Dilapidations. However, the applicability of such a claim will depend on market conditions prevailing at the end of the term and require initial input from your appointed letting agents shortly before lease expiry. Unless specifically agreed or stated within the lease, we will not include finance charges, loss of rates and other similar items in our assessments/claims.

**Fees:** We will include an allowance for legal fees only for the service of Schedules of Dilapidations in our assessments and claims. Surveyors' fees for the preparation and service of schedules will be included but other professionals' fees (such as building services or structural engineers) will not be included unless otherwise stated. All professional fees included will be estimates.

**VAT:** VAT may form part of a claim and is subject to the VAT status of the property and parties to the lease. The total claim (of which VAT may form part) is a damages payment that Customs and Excise do not deem a taxable supply. Invoices are not usually issued by landlords to tenants for this reason.

**Contamination:** We will include in our assessment any obvious contamination issues but we will not undertake any tests or investigation of current or previous uses of the site or adjoining land. We will advise you where we consider a need for specialist advice.

## 5. Energy Performance Certificates

**Generally:** This work is usually undertaken in three stages being:

1. Site inspection and research;
2. Data inputting and Calculating the Certificate; and
3. Lodging the certificate and reporting to the client.

We will initially determine the level of complexity of the building from the information provided by the client. Should it be determined during the site inspection that the complexity of the building and/or its services makes the standard assessment methodology inappropriate, this will be drawn to the attention of the client and a revised proposal will be submitted for sub-consulting the assessment to enable Dynamic Simulation Modelling (DSM) to be carried out.

**Fees:** Our fee quote is based on the assumption that the building can be inspected in one visit with unrestricted access to all areas. If we find that access is restricted to some parts of the building and that a return visit is required we will invoice all additional time on a time charge basis.

Where keys are held remotely from the property we will charge an additional fee on a time charge basis to cover our time in collecting and returning the keys. Where an instruction is made on the basis that plans are available the following applies:

- Plans must be to scale.
- Plans must accurately show the current layout of the premises.
- Plans must be provided at the time of appointment or before inspection.

Where plans are not immediately available and we are expected to recover them from other parties an additional charge may be made to cover our time in this regard.

**Site Inspection:** The nature of a building's construction will not always be obvious from a visual inspection alone. Where sectional details are not available we will use the inference values provided in iSBEM. Where these are poor and possibly have an effect on the banding/rating of the property we may advise the client to consider opening up elements of the property so that more accurate construction details can be obtained. Opening up works will fall outside the initial fee agreement and we reserve the right to invoice our time for this separately.

**Lifespan/Carbon Checker:** We will generate the EPCs using Lifespan. This system is a software application tool that provides an interface to enable the user to enter data into DCLG's SBEM (Simplified Building Energy Model). SBEM is at the heart of all government approved interface tools and whilst it has been passed for use, and Lifespan is an accredited software tool, there are inherent built in faults with the software that may affect the final rating. Although some tests have been undertaken to establish the accuracy of this software. We accept no responsibility for the software's accuracy.

**Reporting and Advice:** The EPC generates a Recommendations Report within which advice is given for the building owner to upgrade the building's efficiency performance. The advice is generic and in some cases is not considered to be relevant. Where we consider the advice to be poor, we will tailor the report to more accurately reflect the requirements of the building. The recommendations given in the report are not mandatory, so where a building owner implements improvement works based on the recommendations we would expect them to discuss the proposals in more detail before any expense is incurred.

**Documentation Provided:** We cannot take responsibility for the accuracy of any information provided by others for the purpose of carrying out the assessments. Similarly we cannot take responsibility where information to be provided is missing or its provision is delayed and that information conflicts with our assessment. Where such documents become available we recommend that copies are forwarded to us immediately in order that any advice provided can be refined.

### 6. Bank or Fund Monitoring

Our report is based upon discussions with the borrower (being the person to whom our client, a funder, is lending money), as well as reports, records and data provided by the borrower or on their behalf ("Information"). We will use our professional judgement and experience to evaluate and interrogate the Information, however we are not auditing the Information and we cannot guarantee that it is accurate and complete in all respects. It is the borrower's duty to ensure that the Information is accurate and complete, and

we shall not be liable for any errors or omissions in the Information, or for losses arising as a result of such errors or omissions.

### 7. Rights of Light and Daylight

Where necessary we will comment on apparent rights of way / support or light which may be visible or suspected albeit our comments will be outline in nature and without any detailed investigations.

#### Generally

This work is usually undertaken in three stages being:

1. Site inspection and research;
2. Modelling and testing; and
3. Reporting and provision of advice.

Analyses are often reliant on third party advice and particularly in relation to initial RoL and DSO studies based on a number of assumptions relating to the surrounding buildings. The RoL work also involves legal and valuation matters on which we may offer opinions but should be verified by reference to appropriate specialist consultants.

#### Site Inspection

Whilst we will endeavour to undertake a thorough review of the buildings surrounding the site, where certain parts are not readily visible from vantage points available to us, we cannot guarantee that all relevant receptors will be included. Assumptions may be made as to the presence and position of windows situated on elevations of existing buildings, which cannot be readily seen. To prevent alarm and respect privacy of neighbouring occupiers, close inspection of windows in neighbouring buildings may not be possible and this may affect the quality and accuracy of information taken on site. Assumptions will be made as to room size, use and layout where necessary. No topographical survey of site levels or elevation detailing will be undertaken. Should precise dimensions and window locations be required, we would recommend that separate topographical land, building and elevation surveys are instructed and provided in AutoCAD format.

#### Research

Limited research will be undertaken where necessary to determine:

1. Age of buildings;
2. Historic site development;
3. Legal constraints; and
4. Planning policies.

Where necessary to assist research, historic maps, aerial photographs and Land Registry title documents may be purchased and charged as disbursements.

#### Modelling & Testing

3D Modelling is usually undertaken using AutoCAD software. Unless provided with accurate topographical survey information relating to levels and elevation detailing, approximate dimensions will be used from limited measurements taken on site, available OS data and 'brick counting' from photographs. Where necessary we may buy third party photogrammetry models as a starting point for creating our models. The cost of same will be

charged as a disbursement. Tests are usually undertaken using software licensed to us by Waterslade/MBS Survey Software. Although some tests have been undertaken to establish the accuracy of this software we take no responsibility for the software's accuracy.

### Reporting and Advice

Reports and advice will usually be based on a number of assumptions and with reliance on third party information. Where assumptions have been made, these will usually be stated and recommendations will be given for further work required. Where specialist legal, planning and/or valuation advice is required, recommendations for same will be highlighted within our report or separately.

### Third Party Advice and Products

Our processes include the use of third party advice and products such as:

1. Ordinance Survey data;
2. Title documents;
3. Baseline models;
4. Topographic surveys;
5. Aerial photography;
6. Architects' drawings; and
7. Local authority archive information.

Whilst we will review this information for accuracy insofar as required for our assessments, we do not accept any liability for inaccuracies in third party information or loss or damage arising from some.

### Valuation of Damages

Where appropriate we will provide book value damages estimates for right to light infringements.

### Valuations Will Be

- Based on assumed rents and yields;
- Formulated in accordance with standard industry practice;
- Given at current prices; no adjustments will be made for future inflation;
- Quoted as budget estimates only and are not to be thought of as a substitute for obtaining specialist valuation advice;
- Exclusive of both parties' professional fees;
- Exclusive of any taxes that may be applicable i.e. VAT/SDLT.

### We Will Not

- Provide valuations based on development gain or profit share method.

## 8. Party Wall Terms – Building Owner and Adjoining Owner

### Surveyors Appointment

References to 'Appointing Owner' and 'Building Owner' are references to you. References to 'Adjoining Owner' relate to the owner/s of the neighbouring property adjacent to your work that is or may be subject to the Act.

To administer the requirements of the Act surveyors need a

written appointment. The appointment must be an individual and cannot be a company. Liability for work undertaken remains solely with us and not the appointed individual under the Act. We will provide a draft letter of appointment which must be completed and returned to confirm the appointment at or before the point at which there is either a deemed or actual dispute.

The letter of appointment must be signed by the Appointing Owner, or an agent with specific authorisation to sign on your behalf.

Once the appointment is confirmed it cannot be retracted or determined except if the surveyor appointed declares themselves incapable of acting in certain circumstances as prescribed by the Act. You should be aware that appointments follow a statutory procedure which requires the appointed surveyor(s) to work within the jurisdiction of the Act by administering its provisions fairly and impartially.

### Fees

You are contractually responsible for payment of your surveyor's fee and those of the Adjoining Owner where we advise it is reasonable to do so.

An Award will generally determine that the Building Owner is responsible to pay the fee of both appointed surveyors. However, specific circumstances may mean this is not always the case. For example, fees may be apportioned between Owners if they both benefit from the works.

We reserve the right to charge additional fees in relation to changes in the design or scope of the works that requires addendum Award(s) or new Notice(s).

We reserve the right to charge additional fees in relation to assessing claims for damage and awarding any necessary compensation or making good.

### Fees – Specialist Consultants

In some circumstances appointed Surveyors may suggest that specialists such as engineers or solicitors are appointed to assist in matters directly related to the administration of the Act or determination of the dispute.

The contract and responsibility for fees in relation to this appointment will be between the specialist and you. You are also likely to be responsible for the reasonable fees of the Adjoining Owner's Specialist Consultants' fees.

### Boundary Determination

Whether a wall is built up to, or astride the boundary is not always easy to determine. Sometimes this can only be established by reviewing title deeds and with the assistance of a solicitor. Our advice without the benefit of title information is very much outline and will be based on certain assumptions.

### Timescales

Whilst we will liaise with the design team and contractor to procure information required for Notices and Awards, it is outside our control if information from the design team and/or contractor is either incorrect in terms of design or

level of detail, or is not provided to us in good time.

### **Information for the Award**

The design team and appointed contractor are responsible to provide the information requested to be included within the Award. Where possible we will give an indication of the likely information that will be required. We are not responsible for any delay to action requests for information that may impact the development programme.

### **Right of Access**

In certain circumstances the Act allows the Building Owner to access the Adjoining Owner's land for the purpose of executing work in pursuance of the Act. Our fee does not include for discussing access to works that are not in pursuance of the Act and if that is required, a separate agreement and fee will be given.

### **Security for Expenses**

We will not hold monies for Security for Expenses. It is usual practice that any sum agreed will be held in a solicitor's client account sometimes managed as an escrow account and only released on signature of two of the three surveyors.

Where relevant, the terms and conditions in relation to Security for Expenses will be set out in the Award.

### **Third Surveyor Referrals**

The appointed surveyors are required to appoint a Third Surveyor to determine any disputed matters. If referral of a disputed matter to the third surveyor is necessary, the procedure will be set out to you, along with any cost implications.

We may charge an additional fee for time relating to matters incidental to third surveyor referrals.

### **General**

We will make all reasonable efforts to identify the Adjoining Owner(s) of a property by making checks with the Land Registry (with the cost charged as a disbursement). We cannot accept any liability it after making reasonable enquiries, we do not manage to ascertain all Adjoining Owners with an interest in the property.

The ability to agree an Award is very much linked to the quality and level of detail that is provided from the design team and/or contractor. We cannot accept responsibility if the Information provided is insufficient to enable completion of an Award.

We do not accept any liability arising from the loss or delay in delivery of Notices by the Royal Mail or other carriers.

Where the depth of foundations is unknown and in the absence of any information such as trial pit Information, we will make a reasonable estimate on the foundation depth.

Our schedules of condition in relation to the Act only extend to the area of the property in close proximity to the notifiable work and will not unless considered necessary, extend to a full record of the condition of the entire Adjoining Owner's property.