



**TIM O'HARE ASSOCIATES**  
SOIL & LANDSCAPE CONSULTANCY

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61 Mossley Road  
Trafford Park  
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16<sup>th</sup> October 2025  
Our Ref: TOHA/25/7037/SS  
Your Ref: see below

Dear Sirs

**Topsoil Analysis Report: Vistry Homes, Mill Lane, Warrington**

We have completed the analysis of the soil sample recently submitted, referenced *Vistry Homes Warrington Topsoil*, and have pleasure reporting our findings.

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

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

**SAMPLE EXAMINATION**

The sample was described as a very dark grey (Munsell Colour 10YR 3/1), slightly moist, friable, non-calcareous SANDY LOAM with a well developed, fine to coarse granular structure\*. The sample was virtually stone-free and no unusual odours or deleterious materials were observed.

\*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately

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## **ANALYTICAL SCHEDULE**

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

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

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

## **RESULTS OF ANALYSIS**

### **Particle Size Analysis and Stone Content**

The sample fell into the *sandy loam* texture class, which is usually considered suitable for general landscape applications provided the physical condition of the soil is satisfactory.

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

### **pH and Electrical Conductivity Values**

The sample was acid in reaction (pH 5.6), with a pH value that would be considered suitable for general landscape purposes and in particular acid-loving species (calcifuges). This pH value is unlikely to be suitable for species known to specifically require or prefer alkaline soils.

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

The electrical conductivity value by CaSO<sub>4</sub> extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

### **Organic Matter and Fertility Status**

The sample was adequately supplied with organic matter and most major plant nutrients but was deficient in extractable potassium. This nutrient deficiency can be remedied by a suitable compost application.

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

### **Potential Contaminants**

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

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

*Note: Due to the dark colour of the sample, the colorimetry analysis of hexavalent chromium could not be performed in this instance (noted as U/S - Unsuitable Sample on the certificate). Instead, the laboratory has provided additional unaccredited testing for hexavalent chromium in this sample by ion chromatography, which was reported to be less than the limit of detection (<1.80 mg/kg).*

### **Phytotoxic Contaminants**

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

### **CONCLUSION**

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil - Table 1, Multipurpose Topsoil*).

From the soil examination and subsequent laboratory analysis, the sample was described as an acid, non-saline, non-calcareous *sandy loam* with a well developed structure and very low stone content. The sample was adequately supplied with organic matter and most major plant nutrients but was deficient in extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided the extractable potassium deficiency is addressed by a suitable compost application, acid-loving species are selected and the physical condition of the soil is satisfactory.

The sample was largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*), with the exception of the low extractable potassium level. On this occasion, this non-compliance would be considered minor when reviewed in the context of all other results, provided the nutrient deficiency is remedied by a suitable compost application.

### **RECOMMENDATIONS**

#### **Compost Application**

To address the extractable potassium deficiency, we recommend applying and incorporating suitable compost (e.g. PAS100:2018 /Landscape Institute/WRAP grade (10mm screened) green compost) at a rate of **15%** by volume, ensuring the soil is dry and friable.

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

#### **Soil Handling Recommendations**

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

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

If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

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

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

Yours faithfully



**Neema Senthil Kumar**  
BSc MSc  
Graduate Soil Scientist



**Rebecca Roberts**  
BSc MSc MSoilSci  
Senior Soil Scientist

*For & on behalf of Tim O'Hare Associates LLP*



**TIM O'HARE ASSOCIATES**  
SOIL & LANDSCAPE CONSULTANCY

|             |                                     |
|-------------|-------------------------------------|
| Client:     | PP O'Connor                         |
| Project:    | Vistry Homes, Mill Lane, Warrington |
| Job:        | Topsoil Analysis - BS3882:2015      |
| Date:       | 16/10/2025                          |
| Job Ref No: | TOHA/25/7037/SS                     |

| Sample Reference                  |      |               |
|-----------------------------------|------|---------------|
|                                   |      | Accreditation |
| Clay (<0.002mm)                   | %    | UKAS          |
| Silt (0.002-0.063mm)              | %    | UKAS          |
| Sand (0.063-2.0mm)                | %    | UKAS          |
| Texture Class (UK Classification) | —    | UKAS          |
| Stones (2-20mm)                   | % DW | GLP           |
| Stones (20-50mm)                  | % DW | GLP           |
| Stones (>50mm)                    | % DW | GLP           |

|                                                         |       |      |
|---------------------------------------------------------|-------|------|
| pH Value (1:2.5 water extract)                          | units | UKAS |
| Electrical Conductivity (1:2.5 water extract)           | uS/cm | UKAS |
| Electrical Conductivity (1:2 CaSO <sub>4</sub> extract) | uS/cm | UKAS |
| Exchangeable Sodium Percentage                          | %     | UKAS |

|                        |       |      |
|------------------------|-------|------|
| Organic Matter (LOI)   | %     | UKAS |
| Total Nitrogen (Dumas) | %     | UKAS |
| C : N Ratio            | ratio | UKAS |
| Extractable Phosphorus | mg/l  | UKAS |
| Extractable Potassium  | mg/l  | UKAS |
| Extractable Magnesium  | mg/l  | UKAS |

|                             |       |        |
|-----------------------------|-------|--------|
| Total Arsenic (As)          | mg/kg | MCERTS |
| Total Cadmium (Cd)          | mg/kg | MCERTS |
| Total Chromium (Cr)         | mg/kg | MCERTS |
| Hexavalent Chromium (Cr VI) | mg/kg | MCERTS |
| Total Copper (Cu)           | mg/kg | MCERTS |
| Total Lead (Pb)             | mg/kg | MCERTS |
| Total Mercury (Hg)          | mg/kg | MCERTS |
| Total Nickel (Ni)           | mg/kg | MCERTS |
| Total Selenium (Se)         | mg/kg | MCERTS |
| Total Zinc (Zn)             | mg/kg | MCERTS |
| Water Soluble Boron (B)     | mg/kg | MCERTS |
| Total Cyanide (CN)          | mg/kg | MCERTS |
| Total (mono) Phenols        | mg/kg | MCERTS |

|                          |       |        |
|--------------------------|-------|--------|
| Naphthalene              | mg/kg | MCERTS |
| Acenaphthylene           | mg/kg | MCERTS |
| Acenaphthene             | mg/kg | MCERTS |
| Fluorene                 | mg/kg | MCERTS |
| Phenanthrene             | mg/kg | MCERTS |
| Anthracene               | mg/kg | MCERTS |
| Fluoranthene             | mg/kg | MCERTS |
| Pyrene                   | mg/kg | MCERTS |
| Benz(a)anthracene        | mg/kg | MCERTS |
| Chrysene                 | mg/kg | MCERTS |
| Benzo(b)fluoranthene     | mg/kg | MCERTS |
| Benzo(k)fluoranthene     | mg/kg | MCERTS |
| Benzo(a)pyrene           | mg/kg | MCERTS |
| Indeno(1,2,3-cd)pyrene   | mg/kg | MCERTS |
| Dibenzo(a,h)anthracene   | mg/kg | MCERTS |
| Benzo(g,h,i)perylene     | mg/kg | MCERTS |
| Total PAHs (sum USEPA16) | mg/kg | MCERTS |

|                          |       |        |
|--------------------------|-------|--------|
| Aliphatic TPH >C5 - C6   | mg/kg | MCERTS |
| Aliphatic TPH >C6 - C8   | mg/kg | MCERTS |
| Aliphatic TPH >C8 - C10  | mg/kg | MCERTS |
| Aliphatic TPH >C10 - C12 | mg/kg | MCERTS |
| Aliphatic TPH >C12 - C16 | mg/kg | MCERTS |
| Aliphatic TPH >C16 - C21 | mg/kg | MCERTS |
| Aliphatic TPH >C21 - C35 | mg/kg | MCERTS |
| Aliphatic TPH (C5 - C35) | mg/kg | MCERTS |
| Aromatic TPH >C5 - C7    | mg/kg | MCERTS |
| Aromatic TPH >C7 - C8    | mg/kg | MCERTS |
| Aromatic TPH >C8 - C10   | mg/kg | MCERTS |
| Aromatic TPH >C10 - C12  | mg/kg | MCERTS |
| Aromatic TPH >C12 - C16  | mg/kg | MCERTS |
| Aromatic TPH >C16 - C21  | mg/kg | MCERTS |
| Aromatic TPH >C21 - C35  | mg/kg | MCERTS |
| Aromatic TPH (C5 - C35)  | mg/kg | MCERTS |

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

|                 |      |           |
|-----------------|------|-----------|
| Asbestos Screen | ND/D | ISO 17025 |
|-----------------|------|-----------|

SL = SANDY LOAM

**Visual Examination**

The sample was described as a very dark grey (Munsell Colour 10YR 3/1), slightly moist, friable, non-calcareous SANDY LOAM with a well developed, fine to coarse granular structure. The sample was virtually stone-free and no unusual odours or deleterious materials were observed.

Results of analysis should be read in conjunction with the report they were issued with

**Vistry Homes  
Warrington Topsoil**

|    |
|----|
| 15 |
| 13 |
| 72 |
| SL |
| 1  |
| 0  |
| 0  |

|      |
|------|
| 5.6  |
| 404  |
| 2290 |
| 1.1  |

|      |
|------|
| 4.6  |
| 0.18 |
| 15   |
| 45   |
| 78   |
| 85   |

|       |
|-------|
| 15    |
| 0.3   |
| 29    |
| U/S   |
| 49    |
| 89    |
| < 0.3 |
| 20    |
| < 1.0 |
| 100   |
| 0.7   |
| < 1.0 |
| < 1.0 |

|        |
|--------|
| < 0.05 |
| < 0.05 |
| 0.13   |
| 0.09   |
| 1.00   |
| 0.26   |
| 1.50   |
| 1.40   |
| 0.67   |
| 0.80   |
| 0.84   |
| 0.36   |
| 0.80   |
| 0.34   |
| 0.10   |
| 0.43   |
| 8.7    |

|         |
|---------|
| < 0.010 |
| < 0.010 |
| < 0.010 |
| < 1.0   |
| < 2.0   |
| < 8.0   |
| < 8.0   |
| < 10    |
| < 0.010 |
| < 0.010 |
| < 0.020 |
| < 1.0   |
| < 2.0   |
| < 10    |
| 22      |
| 22      |

|         |
|---------|
| < 0.005 |
| < 0.005 |
| < 0.005 |
| < 0.008 |
| < 0.005 |
| < 0.005 |

|              |
|--------------|
| Not-detected |
|--------------|

*Neema Senthil Kumar*

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