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Ref: 13-500-V10  
Date: 11<sup>th</sup> January 2022

Antony Miller  
**Elan Homes**  
Oak House  
Lloyd Drive  
Cheshire Oaks Business Park  
Ellesmere Port  
CH65 9HQ

By Email

**Dear Antony,**

## **GARDEN VALIDATION – BOOTHROYDEN ROAD PLOTS 42-46**

An E3P engineer attended the above site to validate the thickness of the cover system that had been placed within the rear garden of plots 42-46 at the site off Boothroyden Road in Middleton.

In total 5 No. hand excavated trial pits were advanced with the resulting strata detailed to the rear of this letter.

The trial pits were completed to highlight the required cover system of 600 mm (150 mm topsoil and 450 mm subsoil) over the underlying geotextile membrane.

E3P can confirm that our independent validation demonstrates that the rear gardens have been installed with 150 mm of certified topsoil and at least 450 mm subsoil in accordance with the NHBC requirements for a site of this nature.

### **TOPSOIL**

Topsoil was imported from the former Nantwich Football Club, Reaseheath Way, Nantwich, CW5 5BS. E3P attended site to obtain three samples of the topsoil which were analysed in accordance with the Remediation Strategy. Chemical analysis results are included within lab report 20-26435 (attached to this letter).

Additional topsoil was imported from Landgate Farm off Landgate Lane in Wigan. Three topsoil samples



were analysed in accordance with the E3P Remediation Strategy. Chemical analysis results are included within lab report 21-58521 (attached to this letter).

Chemical analysis confirmed the absence of any contaminant exceedances; therefore, it has been determined that the topsoil is suitable for utilisation within the proposed gardens.

Further chemical analysis will be undertaken as further topsoil is imported to ensure a sampling frequency is undertaken in accordance with the regulatory approved Remediation Strategy.

## **SUBSOIL**

Subsoil was imported from Scoutmoor Quarry, Scout Road, Ramsbottom, BL0 0RQ. E3P attended site to obtain three samples of the subsoil which were analysed in accordance with the Remediation Strategy. Chemical analysis results are included within lab report 20-26435 (attached to this letter).

Additional subsoil was imported from Landgate Farm off Landgate Lane in Wigan. Three subsoil samples were analysed in accordance with the E3P Remediation Strategy. Chemical analysis results are included within lab report 21-62737 (attached to this letter).

Further subsoil was imported from the Elan Homes site at Bury New Road, Ramsbottom. Three subsoil samples were analysed in accordance with the E3P Remediation Strategy. Chemical analysis results are included within lab report 21-76570 (attached to this letter).

Chemical analysis confirmed the absence of any contaminant exceedances; therefore, it has been determined that the topsoil is suitable for utilisation within the proposed gardens.

Further chemical analysis will be undertaken as further topsoil is imported to ensure a sampling frequency is undertaken in accordance with the regulatory approved Remediation Strategy.

Cover system validation photographs are enclosed within this letter.

I trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,

**For and on behalf of E3P Ltd**

Nicola Sellars

Senior Geo-Environmental Consultant



## Site: Boothroyden Road

|                               |                          |
|-------------------------------|--------------------------|
| Date: 11-01-2022              | Project Number: 13-500   |
| Project Manager: N. Sellars   | E3P Engineer: T. Preston |
| Plot Numbers Validated: 42-46 |                          |

### Chemical Laboratory Analysis

Analysis for topsoil and subsoil undertaken by I2 Analytical Laboratory using UKAS accredited methods where applicable.

Chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos.

Sampling frequency in accordance with the agreed Remediation Strategy. Laboratory analysis certificates attached to this validation certificate.

|                                                        | Topsoil | Subsoil |
|--------------------------------------------------------|---------|---------|
| <i>Chemical analysis confirmed materials suitable?</i> | Pass    | Pass    |
| <i>Further Comments</i>                                | N/A     | N/A     |



**Plot No: 42**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.15 | Validated TOPSOIL |
|                                | 0.15-0.65 | Validated SUBSOIL |

**Depth of Cover System Materials**



**Depth of Cover System at Ground Level**



**Depth of Cover System Materials**



**Depth of Cover System in Relation to Plot**



**Plot 42 Geotextile Membrane**



**Plot No: 43**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.15 | Validated TOPSOIL |
|                                | 0.15-0.65 | Validated SUBSOIL |

**Depth of Cover System Materials**



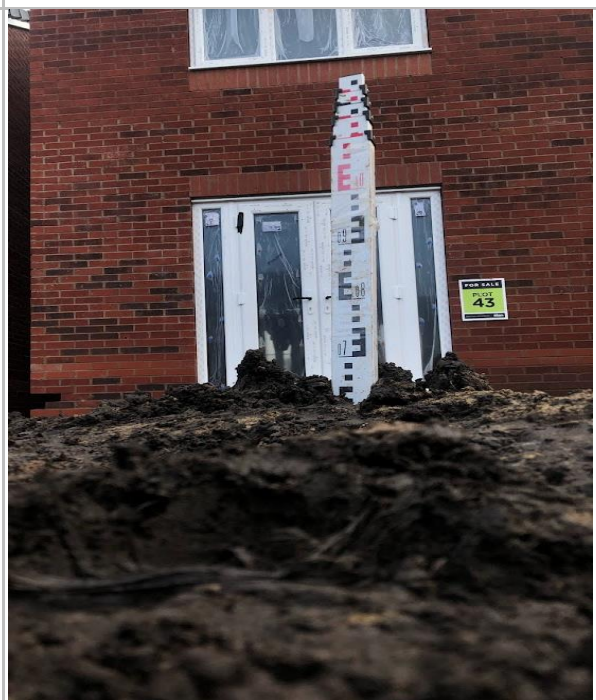
**Depth of Cover System Materials**



**Depth of Cover System at Ground Level**



**Depth of Cover System in Relation to Plot**



**Plot 43 Geotextile Membrane**



**Plot No: 44**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.20 | Validated TOPSOIL |
|                                | 0.20-0.85 | Validated SUBSOIL |

**Depth of Cover System Materials**



**Depth of Cover System at Ground Level**

**Depth of Cover System Materials**



**Depth of Cover System in Relation to Plot**



**Plot 44 Geotextile Membrane**



**Plot No: 45**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.15 | Validated TOPSOIL |
|                                | 0.15-0.85 | Validated SUBSOIL |

**Depth of Cover System Materials**



**Depth of Cover System at Ground Level**



**Depth of Cover System Materials**



**Depth of Cover System in Relation to Plot**



**Plot 45 Geotextile Membrane**



**Plot No: 46**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.15 | Validated TOPSOIL |
|                                | 0.15-0.70 | Validated SUBSOIL |

**Depth of Cover System Materials**



**Depth of Cover System Materials**



**Depth of Cover System at Ground Level**



**Depth of Cover System in Relation to Plot**



**Plot 46 Geotextile Membrane**





4041



Environmental Science

**Nicola Sellars**

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**Analytical Report Number : 20-26435**

Replaces Analytical Report Number: 20-26435, issue no. 3

Client sampling date amended.

|                             |                |                                                        |            |
|-----------------------------|----------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Boothroyden    | <b>Samples received on:</b>                            | 24/08/2020 |
| <b>Your job number:</b>     | 13-500         | <b>Samples instructed on/<br/>Analysis started on:</b> | 24/08/2020 |
| <b>Your order number:</b>   |                | <b>Analysis completed by:</b>                          | 03/09/2020 |
| <b>Report Issue Number:</b> | 3              | <b>Report issued on:</b>                               | 03/09/2020 |
| <b>Samples Analysed:</b>    | 6 soil samples |                                                        |            |

**Signed:** *A. Czerwińska*

Agnieszka Czerwińska  
Technical Reviewer (Reporting Team)  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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



Analytical Report Number: 20-26435

Project / Site name: Boothroyden

| Lab Sample Number                       |  |  |  | 1601911       | 1601912            | 1601913              | 1601914       |
|-----------------------------------------|--|--|--|---------------|--------------------|----------------------|---------------|
| Sample Reference                        |  |  |  | TS101         | TS102              | TS103                | SS101         |
| Sample Number                           |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Depth (m)                               |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Date Sampled                            |  |  |  | 21/08/2020    | 21/08/2020         | 21/08/2020           | 21/08/2020    |
| Time Taken                              |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units         | Limit of detection | Accreditation Status |               |

|                               |    |       |      |       |       |       |       |
|-------------------------------|----|-------|------|-------|-------|-------|-------|
| Stone Content                 | %  | 0.1   | NONE | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Moisture Content              | %  | N/A   | NONE | 9.6   | 10    | 10    | 17    |
| Total mass of sample received | kg | 0.001 | NONE | 0.5   | 0.5   | 0.5   | 0.5   |

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

#### General Inorganics

|                                                                         |          |         |        |       |       |       |       |
|-------------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|-------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 7.9   | 7.9   | 7.8   | 7.5   |
| Total Cyanide                                                           | mg/kg    | 1       | MCERTS | < 1   | < 1   | < 1   | < 1   |
| Total Sulphate as SO <sub>4</sub>                                       | mg/kg    | 50      | MCERTS | 260   | 360   | 320   | 430   |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 130   | 210   | 130   | 88    |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.068 | 0.11  | 0.067 | 0.044 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 67.5  | 106   | 67.3  | 44.1  |
| Sulphide                                                                | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | 5.3   | < 1.0 |
| Total Sulphur                                                           | mg/kg    | 50      | MCERTS | 230   | 280   | 200   | 390   |

#### Total Phenols

|                            |       |   |        |       |       |       |       |
|----------------------------|-------|---|--------|-------|-------|-------|-------|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|-------|-------|

#### 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 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

#### Total PAH

|                             |       |     |        |        |        |        |        |
|-----------------------------|-------|-----|--------|--------|--------|--------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | < 0.80 | < 0.80 | < 0.80 |
|-----------------------------|-------|-----|--------|--------|--------|--------|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 2.6   | 3.7   | 2.9   | 6.7   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 13    | 13    | 12    | 14    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 10    | 11    | 9.9   | 25    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 16    | 18    | 18    | 42    |
| 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 | 13    | 13    | 12    | 11    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 36    | 45    | 35    | 64    |

Analytical Report Number: 20-26435

Project / Site name: Boothroyden

|                                         |  |  |  |               |                    |                      |               |
|-----------------------------------------|--|--|--|---------------|--------------------|----------------------|---------------|
| Lab Sample Number                       |  |  |  | 1601911       | 1601912            | 1601913              | 1601914       |
| Sample Reference                        |  |  |  | TS101         | TS102              | TS103                | SS101         |
| Sample Number                           |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Depth (m)                               |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Date Sampled                            |  |  |  | 21/08/2020    | 21/08/2020         | 21/08/2020           | 21/08/2020    |
| Time Taken                              |  |  |  | None Supplied | None Supplied      | None Supplied        | None Supplied |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units         | Limit of detection | Accreditation Status |               |

#### Petroleum Hydrocarbons

|                    |       |     |        |       |       |       |       |
|--------------------|-------|-----|--------|-------|-------|-------|-------|
| TPH (C5 - C6)      | mg/kg | 1   | NONE   | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH (C6 - C8)      | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH (C8 - C10)     | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH (C10 - C12)    | mg/kg | 2   | MCERTS | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| TPH (C12 - C16)    | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 | < 4.0 |
| TPH (C16 - C21)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH (C21 - C35)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH (C35 - C40)    | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  | < 10  |
| TPH Total C5 - C40 | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  | < 10  |

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

Analytical Report Number: 20-26435

Project / Site name: Boothroyden

|                                         |               |                      |
|-----------------------------------------|---------------|----------------------|
| Lab Sample Number                       | 1601915       | 1601916              |
| Sample Reference                        | SS102         | SS103                |
| Sample Number                           | None Supplied | None Supplied        |
| Depth (m)                               | None Supplied | None Supplied        |
| Date Sampled                            | 21/08/2020    | 21/08/2020           |
| Time Taken                              | None Supplied | None Supplied        |
| Analytical Parameter<br>(Soil Analysis) | Units         | Limit of detection   |
|                                         |               | Accreditation Status |

|                               |    |       |      |       |       |
|-------------------------------|----|-------|------|-------|-------|
| Stone Content                 | %  | 0.1   | NONE | < 0.1 | < 0.1 |
| Moisture Content              | %  | N/A   | NONE | 17    | 15    |
| Total mass of sample received | kg | 0.001 | NONE | 0.5   | 0.5   |

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

#### General Inorganics

|                                                                         |          |         |        |       |       |
|-------------------------------------------------------------------------|----------|---------|--------|-------|-------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 7.8   | 7.6   |
| Total Cyanide                                                           | mg/kg    | 1       | MCERTS | < 1   | < 1   |
| Total Sulphate as SO <sub>4</sub>                                       | mg/kg    | 50      | MCERTS | 510   | 540   |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 83    | 45    |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.042 | 0.022 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 41.7  | 22.3  |
| Sulphide                                                                | mg/kg    | 1       | MCERTS | 1.1   | < 1.0 |
| Total Sulphur                                                           | mg/kg    | 50      | MCERTS | 380   | 340   |

#### Total Phenols

|                            |       |   |        |       |       |
|----------------------------|-------|---|--------|-------|-------|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|

#### Speciated PAHs

|                        |       |      |        |        |        |
|------------------------|-------|------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 |

#### Total PAH

|                             |       |     |        |        |        |
|-----------------------------|-------|-----|--------|--------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | < 0.80 |
|-----------------------------|-------|-----|--------|--------|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 7.3   | 6.9   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 17    | 16    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 26    | 26    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 49    | 41    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 12    | 10    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 68    | 71    |

Analytical Report Number: 20-26435

Project / Site name: Boothroyden

|                                         |  |  |  |                      |                    |
|-----------------------------------------|--|--|--|----------------------|--------------------|
| Lab Sample Number                       |  |  |  | 1601915              | 1601916            |
| Sample Reference                        |  |  |  | SS102                | SS103              |
| Sample Number                           |  |  |  | None Supplied        | None Supplied      |
| Depth (m)                               |  |  |  | None Supplied        | None Supplied      |
| Date Sampled                            |  |  |  | 21/08/2020           | 21/08/2020         |
| Time Taken                              |  |  |  | None Supplied        | None Supplied      |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units                | Limit of detection |
|                                         |  |  |  | Accreditation Status |                    |

#### Petroleum Hydrocarbons

|                    |       |     |        |       |       |
|--------------------|-------|-----|--------|-------|-------|
| TPH (C5 - C6)      | mg/kg | 1   | NONE   | < 1.0 | < 1.0 |
| TPH (C6 - C8)      | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 |
| TPH (C8 - C10)     | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 |
| TPH (C10 - C12)    | mg/kg | 2   | MCERTS | < 2.0 | < 2.0 |
| TPH (C12 - C16)    | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 |
| TPH (C16 - C21)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 |
| TPH (C21 - C35)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 |
| TPH (C35 - C40)    | mg/kg | 10  | MCERTS | < 10  | < 10  |
| TPH Total C5 - C40 | mg/kg | 10  | MCERTS | < 10  | < 10  |

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



**Analytical Report Number : 20-26435**

**Project / Site name: Boothroyden**

\* 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 *                           |
|-------------------|------------------|---------------|---------------|------------------------------------------------|
| 1601911           | TS101            | None Supplied | None Supplied | Brown clay and loam with vegetation.           |
| 1601912           | TS102            | None Supplied | None Supplied | Brown clay and loam with vegetation.           |
| 1601913           | TS103            | None Supplied | None Supplied | Brown clay and loam with vegetation.           |
| 1601914           | SS101            | None Supplied | None Supplied | Brown clay and loam with vegetation and gravel |
| 1601915           | SS102            | None Supplied | None Supplied | Brown clay and loam with vegetation and gravel |
| 1601916           | SS103            | None Supplied | None Supplied | Brown clay and loam with vegetation and gravel |



**Analytical Report Number : 20-26435**

**Project / Site name: Boothroyden**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| 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 disperion staining techniques.                                                  | In house method based on HSG 248                                                                                | A001-PL       | D                  | ISO 17025            |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.                  | In-house method                                                                                                 | L080-PL       | W                  | MCERTS               |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                                  | In house method.                                                                                                | L019-UK/PL    | W                  | NONE                 |
| Monohydric phenols in soil                         | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.                                                 | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | MCERTS               |
| 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.                 | 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               |
| Sulphide in soil                                   | Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode. | In-house method                                                                                                 | L010-PL       | D                  | MCERTS               |
| Total sulphate (as SO <sub>4</sub> in soil)        | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.                                                                                | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| Total Sulphur in soil                              | Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.                                                   | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| Total cyanide in soil                              | Determination of total cyanide by distillation followed by colorimetry.                                                                                                | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | MCERTS               |
| TPH in (Soil)                                      | Determination of TPH bands by HS-GC-MS/GC-FID                                                                                                                          | In-house method, TPH with carbon banding and silica gel split/cleanup.                                          | L076-PL       | D                  | 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' analysis have been carried out in our laboratory in the United Kingdom.**

**For method numbers ending in 'PL' 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.**

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## **Analytical Report Number : 21-58521-1A**

|                             |                  |                                                        |            |
|-----------------------------|------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Boothroyden Road | <b>Samples received on:</b>                            | 23/02/2021 |
| <b>Your job number:</b>     | 13-500           | <b>Samples instructed on/<br/>Analysis started on:</b> | 23/02/2021 |
| <b>Your order number:</b>   | 13500-MJ-B       | <b>Analysis completed by:</b>                          | 03/03/2021 |
| <b>Report Issue Number:</b> | 1A               | <b>Report issued on:</b>                               | 03/03/2021 |
| <b>Samples Analysed:</b>    | 3 soil samples   |                                                        |            |

**Signed:**

Joanna Wawrzeczko  
Technical Reviewer (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

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

Analytical Report Number: 21-58521-1A  
 Project / Site name: Boothroyden Road  
 Your Order No: 13500-MJ-B

| Lab Sample Number                       |       |                    |                      | 1780053       | 1780054       | 1780055       |
|-----------------------------------------|-------|--------------------|----------------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                      | TS101         | TS102         | TS103         |
| Sample Number                           |       |                    |                      | None Supplied | None Supplied | None Supplied |
| Depth (m)                               |       |                    |                      | None Supplied | None Supplied | None Supplied |
| Date Sampled                            |       |                    |                      | 22/02/2021    | 22/02/2021    | 22/02/2021    |
| Time Taken                              |       |                    |                      | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation Status |               |               |               |
| Stone Content                           | %     | 0.1                | NONE                 | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                 | 13            | 11            | 15            |
| Total mass of sample received           | kg    | 0.001              | NONE                 | 0.5           | 0.5           | 0.5           |

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

#### General Inorganics

| pH - Automated                                                   | pH Units | N/A     | MCERTS | 8.4   | 8.3   | 8.4  |
|------------------------------------------------------------------|----------|---------|--------|-------|-------|------|
| Total Cyanide                                                    | mg/kg    | 1       | MCERTS | < 1   | < 1   | 1    |
| Total Sulphate as SO <sub>4</sub>                                | mg/kg    | 50      | MCERTS | 390   | 410   | 480  |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | g/l      | 0.00125 | MCERTS | 0.16  | 0.14  | 0.14 |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/kg    | 2.5     | MCERTS | 320   | 280   | 290  |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/l     | 1.25    | MCERTS | 161   | 140   | 143  |
| Sulphide                                                         | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | 1.8  |
| Total Sulphur                                                    | mg/kg    | 50      | MCERTS | 330   | 340   | 340  |

#### Total Phenols

| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|-------|
|----------------------------|-------|---|--------|-------|-------|-------|

#### Speciated PAHs

|                        |       |      |        |        |        |        |
|------------------------|-------|------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |

#### Total PAH

| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | < 0.80 | < 0.80 |
|-----------------------------|-------|-----|--------|--------|--------|--------|
|-----------------------------|-------|-----|--------|--------|--------|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 2.8   | 2.7   | 3.1   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 9.2   | 11    | 10    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 13    | 10    | 17    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 10    | 9.5   | 13    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 8     | 8.4   | 8.7   |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 28    | 28    | 32    |

**Analytical Report Number: 21-58521-1A**  
**Project / Site name: Boothroyden Road**  
**Your Order No: 13500-MJ-B**

|                                                 |              |                           |                                 |               |               |               |
|-------------------------------------------------|--------------|---------------------------|---------------------------------|---------------|---------------|---------------|
| <b>Lab Sample Number</b>                        |              |                           |                                 | 1780053       | 1780054       | 1780055       |
| <b>Sample Reference</b>                         |              |                           |                                 | TS101         | TS102         | TS103         |
| <b>Sample Number</b>                            |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Depth (m)</b>                                |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Date Sampled</b>                             |              |                           |                                 | 22/02/2021    | 22/02/2021    | 22/02/2021    |
| <b>Time Taken</b>                               |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Analytical Parameter<br/>(Soil Analysis)</b> | <b>Units</b> | <b>Limit of detection</b> | <b>Accreditation<br/>Status</b> |               |               |               |

**Petroleum Hydrocarbons**

|                    |       |     |        |       |       |       |
|--------------------|-------|-----|--------|-------|-------|-------|
| TPH (C5 - C6)      | mg/kg | 1   | NONE   | < 1.0 | < 1.0 | < 1.0 |
| TPH (C6 - C8)      | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C8 - C10)     | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C10 - C12)    | mg/kg | 2   | MCERTS | < 2.0 | < 2.0 | < 2.0 |
| TPH (C12 - C16)    | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 |
| TPH (C16 - C21)    | mg/kg | 1   | MCERTS | < 1.0 | 29    | < 1.0 |
| TPH (C21 - C35)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | 1.1   |
| TPH (C35 - C40)    | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  |
| TPH Total C5 - C40 | mg/kg | 10  | MCERTS | < 10  | 31    | < 10  |

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

**Analytical Report Number : 21-5852-1A**

**Project / Site name: Boothroyden Road**

\* 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 *                            |
|-------------------|------------------|---------------|---------------|-------------------------------------------------|
| 1780053           | TS101            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1780054           | TS102            | None Supplied | None Supplied | Brown loam and clay with gravel and vegetation. |
| 1780055           | TS103            | None Supplied | None Supplied | Brown loam and clay with gravel and vegetation. |

**Analytical Report Number : 21-5852-1A**  
**Project / Site name: Boothroyden Road**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name                               | Analytical Method Description                                                                                                                                          | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| 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               |
| 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               |
| Asbestos identification in soil                    | Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.                                                  | In house method based on HSG 248                                                                                | A001-PL       | D                  | ISO 17025            |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.                  | In-house method                                                                                                 | L080-PL       | W                  | MCERTS               |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                                  | In house method.                                                                                                | L019-UK/PL    | W                  | NONE                 |
| Monohydric phenols in soil                         | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.                                                 | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | MCERTS               |
| 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.                 | 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               |
| Sulphide in soil                                   | Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode. | In-house method                                                                                                 | L010-PL       | D                  | MCERTS               |
| Total sulphate (as SO <sub>4</sub> in soil)        | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.                                                                                | In house method.                                                                                                | L038-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 Sulphur in soil                              | Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.                                                   | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| Total cyanide in soil                              | Determination of total cyanide by distillation followed by colorimetry.                                                                                                | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | MCERTS               |
| TPH in (Soil)                                      | Determination of TPH bands by HS-GC-MS/GC-FID                                                                                                                          | In-house method, TPH with carbon banding and silica gel split/cleanup.                                          | L076-PL       | D                  | MCERTS               |
| D.O. for Gravimetric Quant if Screen/ID positive   | Dependent option for Gravimetric Quant if Screen/ID positive scheduled.                                                                                                | In house asbestos methods A001 & A006.                                                                          | A006-PL       | D                  | NONE                 |
| Sulphate, water soluble, in soil (1hr extraction)  | Sulphate, water soluble, in soil (1hr extraction)                                                                                                                      | In-house method                                                                                                 | L038-PL       | D                  | MCERTS               |



Analytical Report Number : 21-5852-1A  
Project / Site name: Boothroyden Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

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

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.  
For method numbers ending in 'PL' 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.

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## **Analytical Report Number : 21-62737**

|                             |                |                                                        |            |
|-----------------------------|----------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Boothroyden    | <b>Samples received on:</b>                            | 15/03/2021 |
| <b>Your job number:</b>     | 13-500         | <b>Samples instructed on/<br/>Analysis started on:</b> | 15/03/2021 |
| <b>Your order number:</b>   | 31500-NS-C     | <b>Analysis completed by:</b>                          | 18/03/2021 |
| <b>Report Issue Number:</b> | 1              | <b>Report issued on:</b>                               | 18/03/2021 |
| <b>Samples Analysed:</b>    | 3 soil samples |                                                        |            |

**Signed:**

Joanna Wawrzeczko  
Technical Reviewer (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

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

Analytical Report Number: 21-62737  
 Project / Site name: Boothroyden  
 Your Order No: 31500-NS-C

| Lab Sample Number                       |       |                    |                         | 1803748       | 1803749       | 1803750       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | SS101         | SS102         | SS103         |
| Sample Number                           |       |                    |                         | None Supplied | None Supplied | None Supplied |
| Depth (m)                               |       |                    |                         | None Supplied | None Supplied | None Supplied |
| Date Sampled                            |       |                    |                         | 12/03/2021    | 12/03/2021    | 12/03/2021    |
| Time Taken                              |       |                    |                         | 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         |
| Moisture Content                        | %     | 0.01               | NONE                    | 14            | 15            | 15            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.30          | 0.50          | 0.50          |

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

#### General Inorganics

| pH - Automated                                                   | pH Units | N/A     | MCERTS | 7.7   | 8.2   | 7.9   |
|------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|
| Total Cyanide                                                    | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Total Sulphate as SO <sub>4</sub>                                | mg/kg    | 50      | MCERTS | 300   | 390   | 660   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | g/l      | 0.00125 | MCERTS | 0.058 | 0.064 | 0.17  |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/kg    | 2.5     | MCERTS | 120   | 130   | 340   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/l     | 1.25    | MCERTS | 57.6  | 64.3  | 168   |
| Sulphide                                                         | mg/kg    | 1       | MCERTS | < 1.0 | 1.1   | 3.2   |
| Total Sulphur                                                    | mg/kg    | 50      | MCERTS | 180   | 260   | 500   |
| Organic Matter                                                   | %        | 0.1     | MCERTS | 3.3   | 2.6   | 2.2   |

#### Total Phenols

| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|-------|
|----------------------------|-------|---|--------|-------|-------|-------|

#### Speciated PAHs

|                        |       |      |        |        |        |        |
|------------------------|-------|------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | < 0.05 | 0.29   | 0.36   |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | < 0.05 | 0.42   | 0.52   |
| Pyrene                 | mg/kg | 0.05 | MCERTS | < 0.05 | 0.42   | 0.58   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | 0.29   | 0.30   |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | 0.22   | 0.19   |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |

#### Total PAH

| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | 1.64 | 1.95 |
|-----------------------------|-------|-----|--------|--------|------|------|
|-----------------------------|-------|-----|--------|--------|------|------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 4.5   | 7.2   | 6.1   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 9.5   | 12    | 9.8   |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 21    | 26    | 23    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 27    | 43    | 41    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 11    | 13    | 11    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 46    | 83    | 59    |

Analytical Report Number: 21-62737

Project / Site name: Boothroyden

Your Order No: 31500-NS-C

|                                         |       |                    |                         |               |               |               |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|
| Lab Sample Number                       |       |                    |                         | 1803748       | 1803749       | 1803750       |
| Sample Reference                        |       |                    |                         | SS101         | SS102         | SS103         |
| Sample Number                           |       |                    |                         | None Supplied | None Supplied | None Supplied |
| Depth (m)                               |       |                    |                         | None Supplied | None Supplied | None Supplied |
| Date Sampled                            |       |                    |                         | 12/03/2021    | 12/03/2021    | 12/03/2021    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |

#### Petroleum Hydrocarbons

|                    |       |     |        |       |       |       |
|--------------------|-------|-----|--------|-------|-------|-------|
| TPH (C5 - C6)      | mg/kg | 1   | NONE   | < 1.0 | < 1.0 | < 1.0 |
| TPH (C6 - C8)      | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C8 - C10)     | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C10 - C12)    | mg/kg | 2   | MCERTS | < 2.0 | < 2.0 | < 2.0 |
| TPH (C12 - C16)    | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 |
| TPH (C16 - C21)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| TPH (C21 - C35)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| TPH (C35 - C40)    | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  |
| TPH Total C5 - C40 | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  |

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

**Analytical Report Number : 21-62737**

**Project / Site name: Boothroyden**

\* 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 *                         |
|-------------------|------------------|---------------|---------------|----------------------------------------------|
| 1803748           | SS101            | None Supplied | None Supplied | Brown sandy clay with gravel.                |
| 1803749           | SS102            | None Supplied | None Supplied | Brown sandy clay with gravel and vegetation. |
| 1803750           | SS103            | None Supplied | None Supplied | Brown loam and sand with gravel.             |

**Analytical Report Number : 21-62737**

**Project / Site name: Boothroyden**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name                               | Analytical Method Description                                                                                                                                          | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| 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               |
| 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               |
| Asbestos identification in soil                    | Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.                                                  | In house method based on HSG 248                                                                                | A001-PL       | D                  | ISO 17025            |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.                  | In-house method                                                                                                 | L080-PL       | W                  | MCERTS               |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                                  | In house method.                                                                                                | L019-UK/PL    | W                  | NONE                 |
| Monohydric phenols in soil                         | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.                                                 | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | 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               |
| 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.                 | 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               |
| Sulphide in soil                                   | Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode. | In-house method                                                                                                 | L010-PL       | D                  | MCERTS               |
| Total sulphate (as SO <sub>4</sub> in soil)        | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.                                                                                | In house method.                                                                                                | L038-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 Sulphur in soil                              | Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.                                                   | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| Total cyanide in soil                              | Determination of total cyanide by distillation followed by colorimetry.                                                                                                | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | MCERTS               |
| TPH in (Soil)                                      | Determination of TPH bands by HS-GC-MS/GC-FID                                                                                                                          | In-house method, TPH with carbon banding and silica gel split/cleanup.                                          | L076-PL       | D                  | MCERTS               |
| Sulphate, water soluble, in soil (1hr extraction)  | Sulphate, water soluble, in soil (1hr extraction)                                                                                                                      | In-house method                                                                                                 | L038-PL       | D                  | MCERTS               |



Analytical Report Number : 21-62737  
Project / Site name: Boothroyden

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

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

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.  
For method numbers ending in 'PL' 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.



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## **Analytical Report Number : 21-76570**

|                             |                                    |                                                        |            |
|-----------------------------|------------------------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Bury New Rd, Ramsbottom            | <b>Samples received on:</b>                            | 21/05/2021 |
| <b>Your job number:</b>     | 15-026                             | <b>Samples instructed on/<br/>Analysis started on:</b> | 21/05/2021 |
| <b>Your order number:</b>   | 15-026-JS-A                        | <b>Analysis completed by:</b>                          | 28/05/2021 |
| <b>Report Issue Number:</b> | 1                                  | <b>Report issued on:</b>                               | 28/05/2021 |
| <b>Samples Analysed:</b>    | 1 leachate sample - 3 soil samples |                                                        |            |

**Signed:** *A. Czerwińska*

Agnieszka Czerwińska  
Technical Reviewer (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

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

**Analytical Report Number: 21-76570**  
**Project / Site name: Bury New Rd, Ramsbottom**  
**Your Order No: 15-026-JS-A**

|                                                 |              |                           |                                 |               |               |               |
|-------------------------------------------------|--------------|---------------------------|---------------------------------|---------------|---------------|---------------|
| <b>Lab Sample Number</b>                        |              |                           |                                 | 1879475       | 1879476       | 1879477       |
| <b>Sample Reference</b>                         |              |                           |                                 | SP101         | SP102         | SP103         |
| <b>Sample Number</b>                            |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Depth (m)</b>                                |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Date Sampled</b>                             |              |                           |                                 | 20/05/2021    | 20/05/2021    | 20/05/2021    |
| <b>Time Taken</b>                               |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Analytical Parameter<br/>(Soil Analysis)</b> | <b>Units</b> | <b>Limit of detection</b> | <b>Accreditation<br/>Status</b> |               |               |               |
| Stone Content                                   | %            | 0.1                       | NONE                            | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                                | %            | 0.01                      | NONE                            | 13            | 14            | 16            |
| Total mass of sample received                   | kg           | 0.001                     | NONE                            | 1.5           | 1.5           | 1.5           |

|                         |             |            |                  |                     |                     |                     |
|-------------------------|-------------|------------|------------------|---------------------|---------------------|---------------------|
| <b>Asbestos in Soil</b> | <b>Type</b> | <b>N/A</b> | <b>ISO 17025</b> | <b>Not-detected</b> | <b>Not-detected</b> | <b>Not-detected</b> |
|-------------------------|-------------|------------|------------------|---------------------|---------------------|---------------------|

#### General Inorganics

|                                                                  |          |         |        |       |       |       |
|------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|
| pH - Automated                                                   | pH Units | N/A     | MCERTS | 8.4   | 8.2   | 7.9   |
| Total Cyanide                                                    | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Total Sulphate as SO <sub>4</sub>                                | mg/kg    | 50      | MCERTS | 230   | 270   | 270   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | g/l      | 0.00125 | MCERTS | 0.035 | 0.028 | 0.031 |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/kg    | 2.5     | MCERTS | 70    | 56    | 61    |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/l     | 1.25    | MCERTS | 34.8  | 28.1  | 30.5  |
| Sulphide                                                         | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Total Sulphur                                                    | mg/kg    | 50      | MCERTS | 230   | 140   | 140   |
| Total Organic Carbon (TOC)                                       | %        | 0.1     | MCERTS | -     | 0.6   | -     |

#### Total Phenols

|                                   |              |          |               |                 |                 |                 |
|-----------------------------------|--------------|----------|---------------|-----------------|-----------------|-----------------|
| <b>Total Phenols (monohydric)</b> | <b>mg/kg</b> | <b>1</b> | <b>MCERTS</b> | <b>&lt; 1.0</b> | <b>&lt; 1.0</b> | <b>&lt; 1.0</b> |
|-----------------------------------|--------------|----------|---------------|-----------------|-----------------|-----------------|

#### Speciated PAHs

|                        |       |      |        |        |        |        |
|------------------------|-------|------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.59   |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | 0.47   | 0.43   | 0.83   |
| Pyrene                 | mg/kg | 0.05 | MCERTS | 0.46   | 0.43   | 0.79   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.42   |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.22   |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.32   |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |

#### Total PAH

|                                    |              |            |               |             |             |             |
|------------------------------------|--------------|------------|---------------|-------------|-------------|-------------|
| <b>Speciated Total EPA-16 PAHs</b> | <b>mg/kg</b> | <b>0.8</b> | <b>MCERTS</b> | <b>0.93</b> | <b>0.86</b> | <b>3.17</b> |
|------------------------------------|--------------|------------|---------------|-------------|-------------|-------------|

**Analytical Report Number: 21-76570**  
**Project / Site name: Bury New Rd, Ramsbottom**  
**Your Order No: 15-026-JS-A**

|                                                 |              |                           |                                 |               |               |               |
|-------------------------------------------------|--------------|---------------------------|---------------------------------|---------------|---------------|---------------|
| <b>Lab Sample Number</b>                        |              |                           |                                 | 1879475       | 1879476       | 1879477       |
| <b>Sample Reference</b>                         |              |                           |                                 | SP101         | SP102         | SP103         |
| <b>Sample Number</b>                            |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Depth (m)</b>                                |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Date Sampled</b>                             |              |                           |                                 | 20/05/2021    | 20/05/2021    | 20/05/2021    |
| <b>Time Taken</b>                               |              |                           |                                 | None Supplied | None Supplied | None Supplied |
| <b>Analytical Parameter<br/>(Soil Analysis)</b> | <b>Units</b> | <b>Limit of detection</b> | <b>Accreditation<br/>Status</b> |               |               |               |

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 4.8   | 4.6   | 5.2   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 15    | 15    | 16    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 13    | 12    | 13    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 17    | 18    | 21    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 13    | 13    | 13    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 58    | 61    | 63    |

#### Petroleum Hydrocarbons

|                    |       |     |        |       |       |       |
|--------------------|-------|-----|--------|-------|-------|-------|
| TPH (C5 - C6)      | mg/kg | 1   | NONE   | < 1.0 | < 1.0 | < 1.0 |
| TPH (C6 - C8)      | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C8 - C10)     | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 |
| TPH (C10 - C12)    | mg/kg | 2   | MCERTS | < 2.0 | < 2.0 | < 2.0 |
| TPH (C12 - C16)    | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | 13    |
| TPH (C16 - C21)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | 16    |
| TPH (C21 - C35)    | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | 21    |
| TPH (C35 - C40)    | mg/kg | 10  | MCERTS | < 10  | < 10  | < 10  |
| TPH Total C5 - C40 | mg/kg | 10  | MCERTS | < 10  | < 10  | 53    |

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



Analytical Report Number: 21-76570  
Project / Site name: Bury New Rd, Ramsbottom

Your Order No: 15-026-JS-A

|                                             |       |                    |                      |               |
|---------------------------------------------|-------|--------------------|----------------------|---------------|
| Lab Sample Number                           |       |                    |                      | 1879478       |
| Sample Reference                            |       |                    |                      | SP101         |
| Sample Number                               |       |                    |                      | None Supplied |
| Depth (m)                                   |       |                    |                      | None Supplied |
| Date Sampled                                |       |                    |                      | 20/05/2021    |
| Time Taken                                  |       |                    |                      | None Supplied |
| Analytical Parameter<br>(Leachate Analysis) | Units | Limit of detection | Accreditation Status |               |

#### General Inorganics

|                                  |          |     |           |       |
|----------------------------------|----------|-----|-----------|-------|
| pH                               | pH Units | N/A | ISO 17025 | 7.8   |
| Total Cyanide (Low Level 1 µg/l) | µg/l     | 1   | ISO 17025 | < 1.0 |

#### Total Phenols

|                            |      |   |           |       |
|----------------------------|------|---|-----------|-------|
| Total Phenols (monohydric) | µg/l | 1 | ISO 17025 | < 1.0 |
|----------------------------|------|---|-----------|-------|

#### Speciated PAHs

|                        |      |      |           |        |
|------------------------|------|------|-----------|--------|
| Naphthalene            | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Acenaphthylene         | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Acenaphthene           | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Fluorene               | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Phenanthrene           | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Anthracene             | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Fluoranthene           | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Pyrene                 | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Benzo(a)anthracene     | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Chrysene               | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Benzo(b)fluoranthene   | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Benzo(k)fluoranthene   | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Benzo(a)pyrene         | µg/l | 0.01 | ISO 17025 | < 0.01 |
| Indeno(1,2,3-cd)pyrene | µg/l | 0.01 | NONE      | < 0.01 |
| Dibenz(a,h)anthracene  | µg/l | 0.01 | NONE      | < 0.01 |
| Benzo(ghi)perylene     | µg/l | 0.01 | NONE      | < 0.01 |

#### Total PAH

|                   |      |     |      |       |
|-------------------|------|-----|------|-------|
| Total EPA-16 PAHs | µg/l | 0.2 | NONE | < 0.2 |
|-------------------|------|-----|------|-------|

#### Heavy Metals / Metalloids

|                       |      |      |           |        |
|-----------------------|------|------|-----------|--------|
| Arsenic (dissolved)   | µg/l | 1    | ISO 17025 | < 1.0  |
| Cadmium (dissolved)   | µg/l | 0.08 | ISO 17025 | < 0.08 |
| Chromium (hexavalent) | µg/l | 5    | ISO 17025 | < 5.0  |
| Chromium (dissolved)  | µg/l | 0.4  | ISO 17025 | 0.7    |
| Copper (dissolved)    | µg/l | 0.7  | ISO 17025 | 23     |
| Lead (dissolved)      | µg/l | 1    | ISO 17025 | < 1.0  |
| Mercury (dissolved)   | µg/l | 0.5  | ISO 17025 | < 0.5  |
| Nickel (dissolved)    | µg/l | 0.3  | ISO 17025 | 2.6    |
| Selenium (dissolved)  | µg/l | 4    | ISO 17025 | < 4.0  |
| Zinc (dissolved)      | µg/l | 0.4  | ISO 17025 | 6.6    |



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|                                             |       |                    |                      |               |
|---------------------------------------------|-------|--------------------|----------------------|---------------|
| Lab Sample Number                           |       |                    |                      | 1879478       |
| Sample Reference                            |       |                    |                      | SP101         |
| Sample Number                               |       |                    |                      | None Supplied |
| Depth (m)                                   |       |                    |                      | None Supplied |
| Date Sampled                                |       |                    |                      | 20/05/2021    |
| Time Taken                                  |       |                    |                      | None Supplied |
| Analytical Parameter<br>(Leachate Analysis) | Units | Limit of detection | Accreditation Status |               |

#### Monoaromatics & Oxygenates

|                                    |      |    |           |       |
|------------------------------------|------|----|-----------|-------|
| Benzene                            | µg/l | 1  | ISO 17025 | < 1.0 |
| Toluene                            | µg/l | 1  | ISO 17025 | < 1.0 |
| Ethylbenzene                       | µg/l | 1  | ISO 17025 | < 1.0 |
| p & m-xylene                       | µg/l | 1  | ISO 17025 | < 1.0 |
| o-xylene                           | µg/l | 1  | ISO 17025 | < 1.0 |
| MTBE (Methyl Tertiary Butyl Ether) | µg/l | 10 | NONE      | < 10  |

#### Petroleum Hydrocarbons

|                  |      |    |      |      |
|------------------|------|----|------|------|
| TPH1 (C10 - C40) | µg/l | 10 | NONE | < 10 |
|------------------|------|----|------|------|

|                                |      |    |           |       |
|--------------------------------|------|----|-----------|-------|
| TPH-CWG - Aliphatic >C5 - C6   | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aliphatic >C6 - C8   | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aliphatic >C8 - C10  | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aliphatic >C10 - C12 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aliphatic >C12 - C16 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aliphatic >C16 - C21 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aliphatic >C21 - C35 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aliphatic (C5 - C35) | µg/l | 10 | NONE      | < 10  |

|                               |      |    |           |       |
|-------------------------------|------|----|-----------|-------|
| TPH-CWG - Aromatic >C5 - C7   | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aromatic >C7 - C8   | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aromatic >C8 - C10  | µg/l | 1  | ISO 17025 | < 1.0 |
| TPH-CWG - Aromatic >C10 - C12 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aromatic >C12 - C16 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aromatic >C16 - C21 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aromatic >C21 - C35 | µg/l | 10 | NONE      | < 10  |
| TPH-CWG - Aromatic (C5 - C35) | µg/l | 10 | NONE      | < 10  |

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

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**Project / Site name: Bury New Rd, Ramsbottom**

\* 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 *             |
|-------------------|------------------|---------------|---------------|----------------------------------|
| 1879475           | SP101            | None Supplied | None Supplied | Brown clay and loam with gravel. |
| 1879476           | SP102            | None Supplied | None Supplied | Brown loam and clay with gravel. |
| 1879477           | SP103            | None Supplied | None Supplied | Brown clay and sand with gravel. |

**Analytical Report Number : 21-76570**

**Project / Site name: Bury New Rd, Ramsbottom**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name                               | Analytical Method Description                                                                                                                                          | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| 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               |
| 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               |
| BS EN 12457-1 (2:1) Leachate Prep                  | 2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.                                               | In-house method based on BSEN12457-1.                                                                           | L043-PL       | W                  | NONE                 |
| Asbestos identification in soil                    | Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.                                                  | In house method based on HSG 248                                                                                | A001-PL       | D                  | ISO 17025            |
| Metals by ICP-OES in leachate                      | Determination of metals in leachate by acidification followed by ICP-OES.                                                                                              | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L039-PL       | W                  | ISO 17025            |
| Hexavalent chromium in leachate                    | Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.                                          | In-house method                                                                                                 | L080-PL       | W                  | ISO 17025            |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.                  | In-house method                                                                                                 | L080-PL       | W                  | MCERTS               |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                                  | In house method.                                                                                                | L019-UK/PL    | W                  | NONE                 |
| Monohydric phenols in leachate - LOW LEVEL 1 ug/l  | Determination of phenols in leachate by distillation followed by colorimetry.                                                                                          | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | ISO 17025            |
| Monohydric phenols in soil                         | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.                                                 | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | MCERTS               |
| Speciated EPA-16 PAHs in leachate                  | Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.                        | In-house method based on USEPA 8270                                                                             | L102B-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.                 | 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               |
| pH at 20oC in leachate                             | Determination of pH in leachate by electrometric measurement.                                                                                                          | In house method.                                                                                                | L005-PL       | W                  | ISO 17025            |
| Sulphide in soil                                   | Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode. | In-house method                                                                                                 | L010-PL       | D                  | MCERTS               |
| Total sulphate (as SO4 in soil)                    | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.                                                                                | In house method.                                                                                                | L038-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                 |

**Analytical Report Number : 21-76570**

**Project / Site name: Bury New Rd, Ramsbottom**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name                              | Analytical Method Description                                                                                                 | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Total Sulphur in soil                             | Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.          | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| TPH1 (Leachates)                                  | Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.                                               | In-house method                                                                                                 | L070-PL       | W                  | NONE                 |
| TPHCWG (Leachates)                                | Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.                                               | In-house method                                                                                                 | L070-PL       | W                  | NONE                 |
| Total cyanide in soil                             | Determination of total cyanide by distillation followed by colorimetry.                                                       | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | 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. | In house method.                                                                                                | L009-PL       | D                  | MCERTS               |
| BTEX and MTBE in leachates (Monoaromatics)        | Determination of BTEX and MTBE in leachates by headspace GC-MS.                                                               | In-house method based on USEPA8260                                                                              | L073B-PL      | W                  | ISO 17025            |
| TPH in (Soil)                                     | Determination of TPH bands by HS-GC-MS/GC-FID                                                                                 | In-house method, TPH with carbon banding and silica gel split/cleanup.                                          | L076-PL       | D                  | MCERTS               |
| Total cyanide in leachate - 1µg/l                 | Determination of total cyanide by distillation followed by colorimetry.                                                       | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton          | L080-PL       | W                  | ISO 17025            |
| D.O. for Gravimetric Quant if Screen/ID positive  | Dependent option for Gravimetric Quant if Screen/ID positive scheduled.                                                       | In house asbestos methods A001 & A006.                                                                          | A006-PL       | D                  | NONE                 |
| Sulphate, water soluble, in soil (1hr extraction) | Sulphate, water soluble, in soil (1hr extraction)                                                                             | In-house method                                                                                                 | L038-PL       | D                  | MCERTS               |

**For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.**

**For method numbers ending in 'PL' 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.**