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Ref: 14-207- V29  
Date: 15<sup>th</sup> December 2021

Daniel Sonley  
Chandos House  
Oak Green Business Park,  
Cheadle  
Cheshire  
SK8 6QL

By email

**Dear Sir/Madam,**

## **GARDEN VALIDATION – BRUNSWICK MANCHESTER PLOTS 350, 352-353**

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 350, 352-353 at the site of Brunswick Manchester.

In total 3 No hand excavated trial pits were advanced with the resulting strata detailed to the rear of this letter.

All trial pits were completed to highlight the required cover system 600mm (150mm topsoil and 450mm subsoil).

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

### **TOPSOIL**

E3P attended site on the 20<sup>th</sup> of August 2021 to obtain six samples of the stockpiled imported topsoil deposits which were analysed in accordance with the URS Remediation Strategy. The samples were submitted to the independent MCERTS accredited laboratory I2 for analysis including pH, Metals, PAHs and TPH and Asbestos Screen in general accordance with the requirements of the remediation strategy.

Chemical analysis results are included within lab report 21-94379 (attached to 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**



**Rob Horseman**  
**Associate Director**



## Site: Brunswick - Manchester

Date: 15-12-2021

Project Number: 14-207

Project Manager: R. Horseman

E3P Engineer: T. Newall

Plot Numbers Validated: 350, 352-353

### 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: 350**

|                         |           |                   |
|-------------------------|-----------|-------------------|
| Depth of Strata (m bgl) | 0.00-0.15 | Validated TOPSOIL |
|                         | 0.15-0.60 | 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 No: 352**

|                         |           |                   |
|-------------------------|-----------|-------------------|
| Depth of Strata (m bgl) | 0.00-0.15 | Validated TOPSOIL |
|                         | 0.15-0.60 | 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 No: 353**

|                                |           |                   |
|--------------------------------|-----------|-------------------|
| <b>Depth of Strata (m bgl)</b> | 0.00-0.15 | Validated TOPSOIL |
|                                | 0.15-0.60 | 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**



**Rob Horseman**

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## **Analytical Report Number : 21-94379**

|                             |                |                                                        |            |
|-----------------------------|----------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Brunswick      | <b>Samples received on:</b>                            | 20/08/2021 |
| <b>Your job number:</b>     | 14207          | <b>Samples instructed on/<br/>Analysis started on:</b> | 20/08/2021 |
| <b>Your order number:</b>   | 14207RH-B      | <b>Analysis completed by:</b>                          | 30/08/2021 |
| <b>Report Issue Number:</b> | 1              | <b>Report issued on:</b>                               | 30/08/2021 |
| <b>Samples Analysed:</b>    | 6 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

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

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

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Project / Site name: Brunswick  
Your Order No: 14207RH-B

| Lab Sample Number                       |       |                    |                      | 1981337       | 1981338       | 1981339       | 1981340       | 1981341       |
|-----------------------------------------|-------|--------------------|----------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                      | TS101         | TS102         | TS103         | SS101         | SS102         |
| Sample Number                           |       |                    |                      | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Depth (m)                               |       |                    |                      | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Date Sampled                            |       |                    |                      | 18/08/2021    | 18/08/2021    | 18/08/2021    | 18/08/2021    | 18/08/2021    |
| Time Taken                              |       |                    |                      | None Supplied | 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         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                 | 15            | 15            | 15            | 15            | 14            |
| Total mass of sample received           | kg    | 0.001              | NONE                 | 0.50          | 0.50          | 0.50          | 0.50          | 0.40          |

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

#### General Inorganics

| pH - Automated                                                   | pH Units | N/A     | MCERTS | 7.1   | 7.2   | 7.0   | 7.2   | 7.2   |
|------------------------------------------------------------------|----------|---------|--------|-------|-------|-------|-------|-------|
| Total Cyanide                                                    | mg/kg    | 1       | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Sulphate as SO <sub>4</sub>                                | mg/kg    | 50      | MCERTS | 350   | 380   | 400   | 400   | 380   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | g/l      | 0.00125 | MCERTS | 0.051 | 0.049 | 0.075 | 0.076 | 0.081 |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/kg    | 2.5     | MCERTS | 100   | 98    | 150   | 150   | 160   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/l     | 1.25    | MCERTS | 51.3  | 49.1  | 74.7  | 75.9  | 80.8  |
| Sulphide                                                         | mg/kg    | 1       | MCERTS | 6.7   | 7.7   | 10    | 9.4   | 9.4   |
| Total Sulphur                                                    | mg/kg    | 50      | MCERTS | 300   | 280   | 640   | 280   | 300   |

#### Total Phenols

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

#### Speciated PAHs

|                        |       |      |        |        |        |        |        |        |
|------------------------|-------|------|--------|--------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | 0.30   | < 0.05 | 0.84   | < 0.05 | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | 0.33   | < 0.05 | 0.87   | < 0.05 | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS | 0.34   | < 0.05 | 0.76   | < 0.05 | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.45   | < 0.05 | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.29   | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.28   | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.25   | < 0.05 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.32   | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 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 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

#### Total PAH

| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | 0.97 | < 0.80 | 4.06 | < 0.80 | < 0.80 |
|-----------------------------|-------|-----|--------|------|--------|------|--------|--------|
|-----------------------------|-------|-----|--------|------|--------|------|--------|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 8.0   | 9.2   | 7.9   | 8.4   | 6.9   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 | < 4.0 | < 4.0 | < 4.0 | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 17    | 15    | 16    | 19    | 15    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 27    | 26    | 25    | 24    | 25    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 58    | 54    | 53    | 50    | 54    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 15    | 14    | 14    | 18    | 13    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 49    | 44    | 45    | 46    | 44    |

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Project / Site name: Brunswick

Your Order No: 14207RH-B

| Lab Sample Number                       |       |                    |                         | 1981337       | 1981338       | 1981339       | 1981340       | 1981341       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | TS101         | TS102         | TS103         | SS101         | SS102         |
| Sample Number                           |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Depth (m)                               |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Date Sampled                            |       |                    |                         | 18/08/2021    | 18/08/2021    | 18/08/2021    | 18/08/2021    | 18/08/2021    |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |

#### Petroleum Hydrocarbons

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

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

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Project / Site name: Brunswick

Your Order No: 14207RH-B

| Lab Sample Number                       |       |                    |                         | 1981342       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|
| Sample Reference                        |       |                    |                         | SS103         |
| Sample Number                           |       |                    |                         | None Supplied |
| Depth (m)                               |       |                    |                         | None Supplied |
| Date Sampled                            |       |                    |                         | 18/08/2021    |
| Time Taken                              |       |                    |                         | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 15            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.50          |

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

#### General Inorganics

|                                                                  |          |         |        |       |
|------------------------------------------------------------------|----------|---------|--------|-------|
| pH - Automated                                                   | pH Units | N/A     | MCERTS | 7.7   |
| Total Cyanide                                                    | mg/kg    | 1       | MCERTS | < 1.0 |
| Total Sulphate as SO <sub>4</sub>                                | mg/kg    | 50      | MCERTS | 530   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | g/l      | 0.00125 | MCERTS | 0.11  |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/kg    | 2.5     | MCERTS | 230   |
| Water Soluble SO <sub>4</sub> (2:1 Leach. Equiv.) 1hr extraction | mg/l     | 1.25    | MCERTS | 114   |
| Sulphide                                                         | mg/kg    | 1       | MCERTS | 13    |
| Total Sulphur                                                    | mg/kg    | 50      | MCERTS | 420   |

#### Total Phenols

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

#### Speciated PAHs

|                        |       |      |        |        |
|------------------------|-------|------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS | 0.31   |
| Anthracene             | mg/kg | 0.05 | MCERTS | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS | 0.38   |
| Pyrene                 | mg/kg | 0.05 | MCERTS | 0.36   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | MCERTS | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS | < 0.05 |

#### Total PAH

|                             |       |     |        |      |
|-----------------------------|-------|-----|--------|------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | 1.05 |
|-----------------------------|-------|-----|--------|------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |
|-----------------------------------|-------|-----|--------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 8.5   |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 4   | MCERTS | < 4.0 |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 21    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 24    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 46    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 17    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 46    |

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Project / Site name: Brunswick

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| Lab Sample Number                       |       |                    |                         | 1981342       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|
| Sample Reference                        |       |                    |                         | SS103         |
| Sample Number                           |       |                    |                         | None Supplied |
| Depth (m)                               |       |                    |                         | None Supplied |
| Date Sampled                            |       |                    |                         | 18/08/2021    |
| Time Taken                              |       |                    |                         | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |
| <b>Petroleum Hydrocarbons</b>           |       |                    |                         |               |
| TPH (C5 - C6)                           | mg/kg | 1                  | NONE                    | < 1.0         |
| TPH (C6 - C8)                           | mg/kg | 0.1                | MCERTS                  | < 0.1         |
| TPH (C8 - C10)                          | mg/kg | 0.1                | MCERTS                  | < 0.1         |
| TPH (C10 - C12)                         | mg/kg | 2                  | MCERTS                  | < 2.0         |
| TPH (C12 - C16)                         | mg/kg | 4                  | MCERTS                  | < 4.0         |
| TPH (C16 - C21)                         | mg/kg | 1                  | MCERTS                  | < 1.0         |
| TPH (C21 - C35)                         | mg/kg | 1                  | MCERTS                  | < 1.0         |
| TPH (C35 - C40)                         | mg/kg | 10                 | MCERTS                  | < 10          |
| TPH Total C5 - C40                      | mg/kg | 10                 | MCERTS                  | < 10          |

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

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**Project / Site name: Brunswick**

\* 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 *                            |
|-------------------|------------------|---------------|---------------|-------------------------------------------------|
| 1981337           | TS101            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1981338           | TS102            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1981339           | TS103            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1981340           | SS101            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1981341           | SS102            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |
| 1981342           | SS103            | None Supplied | None Supplied | Brown clay and loam with gravel and vegetation. |

**Analytical Report Number : 21-94379**

**Project / Site name: Brunswick**

**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               |
| 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               |

**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.**



Analytical Report Number : 21-94379  
Project / Site name: Brunswick

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 |
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|

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.