

# *GroundSolve Ltd*

*Consulting Geotechnical, Engineering Geology and Environmental Engineers.*

Unit 1 Charter Court,  
Well House Barns,  
Chester Road, Bretton,  
Flintshire, CH4 0DH

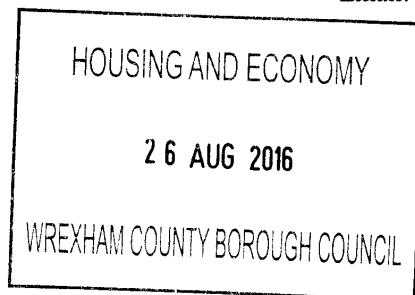
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Email: [mikescott@groundsolve.com](mailto:mikescott@groundsolve.com)

REF: 1788/TF/TankA/mjs

Angela Guy  
Public Protection Service  
Wrexham County Borough Council  
Ruthin Road  
Wrexham LL13 7TU



24<sup>th</sup> August 2016

Dear Angela,

**RE: TOTAL FITNESS, WREXHAM: FUEL TANK VALIDATION**

Following our tank validation letter for the above site, dated 8<sup>th</sup> August 2016, we have now received the final test results, which are attached. The trace of Chrysotile asbestos found in the hardcore at a depth of 0.30 to 0.40m was subjected to a full asbestos quantification test, which recorded a concentration of <0.001%.

We would therefore conclude that there is no evidence of contamination from the above ground fuel tank and the asbestos does not present risk to site users, especially as this area is to remain as tarmac hardstanding within the development. However, in accordance with good practice a watching brief will be kept on all excavations in the vicinity.

We trust this is satisfactory, should you have any queries please call Mike Scott on 01244 661361.

Yours sincerely

M J Scott

Enc

CC Mike Forgrave



# ALcontrol Laboratories

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Ground Solve  
Unit 1  
Well House Barns  
Chester Road  
Bretton  
Cheshire  
CH4 0DH

Attention: Elgan Williams

## CERTIFICATE OF ANALYSIS

Date: 16 August 2016  
Customer: H\_GRSOLVE\_BRE  
Sample Delivery Group (SDG): 160727-104  
Your Reference: 1778  
Location: Total Fitness Tank  
Report No: 373646

**This report has been revised and directly supersedes 372234 in its entirety.**

We received 2 samples on Wednesday July 27, 2016 and 2 of these samples were scheduled for analysis which was completed on Tuesday August 16, 2016. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

**Sonia McWhan**  
Operations Manager



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**CERTIFICATE OF ANALYSIS**

Validated

|                          |                   |                   |                    |                           |          |
|--------------------------|-------------------|-------------------|--------------------|---------------------------|----------|
| <b>SDG:</b>              | 160727-104        | <b>Location:</b>  | Total Fitness Tank | <b>Order Number:</b>      | 1778/erw |
| <b>Job:</b>              | H_GRSOLVE_BRE-187 | <b>Customer:</b>  | Ground Solve       | <b>Report Number:</b>     | 373646   |
| <b>Client Reference:</b> | 1778              | <b>Attention:</b> | Elgan Williams     | <b>Superseded Report:</b> | 372234   |

### Received Sample Overview

| Lab Sample No(s) | Customer Sample Ref. | AGS Ref. | Depth (m)   | Sampled Date |
|------------------|----------------------|----------|-------------|--------------|
| 13858032         | TANK                 |          | 0.30 - 0.40 | 27/07/2016   |
| 13858031         | TANK                 |          | 0.70 - 0.80 | 27/07/2016   |

Only received samples which have had analysis scheduled will be shown on the following pages.

**CERTIFICATE OF ANALYSIS**

Validated

|                               |                                     |                                  |
|-------------------------------|-------------------------------------|----------------------------------|
| <b>SDG:</b> 160727-104        | <b>Location:</b> Total Fitness Tank | <b>Order Number:</b> 1778/erw    |
| <b>Job:</b> H_GRSOLVE_BRE-187 | <b>Customer:</b> Ground Solve       | <b>Report Number:</b> 373646     |
| <b>Client Reference:</b> 1778 | <b>Attention:</b> Elgan Williams    | <b>Superseded Report:</b> 372234 |

| SOLID<br>Results Legend<br><input checked="" type="checkbox"/> Test<br><input type="checkbox"/> No Determination Possible | Lab Sample No(s)          | 13868031                                 | 13868032                                 |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------|------------------------------------------|
|                                                                                                                           | Customer Sample Reference | TANK                                     | TANK                                     |
|                                                                                                                           | AGS Reference             |                                          |                                          |
|                                                                                                                           | Depth (m)                 | 0.30 - 0.40                              | 0.70 - 0.80                              |
|                                                                                                                           | Container                 | 500 VOC (AL/E215)<br>250g Amber Jar (AL) | 500 VOC (AL/E215)<br>250g Amber Jar (AL) |
| Anions by Kone (soil)                                                                                                     | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Asbestos ID in Solid Samples                                                                                              | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Asbestos Quantification - Full                                                                                            | All                       | NDPs: 0<br>Tests: 1                      | X                                        |
| Chromium III                                                                                                              | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Cyanide<br>Comp/Free/Total/Thiocyanate                                                                                    | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Easily Liberated Sulphide                                                                                                 | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Elemental Sulphur                                                                                                         | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| EPH CWG (Aliphatic) GC (S)                                                                                                | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| EPH CWG (Aromatic) GC (S)                                                                                                 | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| GRO by GC-FID (S)                                                                                                         | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Hexavalent Chromium (s)                                                                                                   | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Metals in solid samples by OES                                                                                            | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| PAH by GC/MS                                                                                                              | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| pH                                                                                                                        | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |
| Phenols by HPLC (S)                                                                                                       | All                       | NDPs: 0<br>Tests: 2                      | X X                                      |

CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104 Location: Total Fitness Tank Order Number: 1778/enw  
 Job: H\_GRSOLVE\_BRE-187 Customer: Ground Solve Report Number: 373646  
 Client Reference: 1778 Attention: Eigan Williams Superseded Report: 372234

|                                                                                                                                         |     |                           |                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------|------------------------------------------------------------------------------------|
| <b>SOLID</b><br><b>Results Legend</b><br><input checked="" type="checkbox"/> Test<br><input type="checkbox"/> No Determination Possible |     | Lab Sample No(s)          | 13656031<br>13656032                                                               |
|                                                                                                                                         |     | Customer Sample Reference | TANK                                                                               |
|                                                                                                                                         |     | AGS Reference             |                                                                                    |
|                                                                                                                                         |     | Depth (m)                 | 0.70 - 0.80<br>0.30 - 0.40                                                         |
|                                                                                                                                         |     | Container                 | 800 VOC (ALE215)<br>250g Amber Jar (AL)<br>600 VOC (ALE215)<br>250g Amber Jar (AL) |
| Sample description                                                                                                                      | All | NDPs: 0<br>Tests: 2       | X X                                                                                |
| Semi Volatile Organic Compounds                                                                                                         | All | NDPs: 0<br>Tests: 2       | X X                                                                                |
| Total Organic Carbon                                                                                                                    | All | NDPs: 0<br>Tests: 2       | X X                                                                                |
| TPH CWG GC (S)                                                                                                                          | All | NDPs: 0<br>Tests: 2       | X X                                                                                |
| VOC MS (S)                                                                                                                              | All | NDPs: 0<br>Tests: 2       | X X                                                                                |

**SDG:** 160727-104  
**Job:** H\_GRSOLVE\_BRE-187  
**Client Reference:** 1778

**Location:** Total Fitness Tank  
**Customer:** Ground Solve  
**Attention:** Elgan Williams

**Order Number:** 1778/erw  
**Report Number:** 373646  
**Superseded Report:** 372234

## Sample Descriptions

### Grain Sizes

|           |          |      |                 |        |             |        |            |             |       |
|-----------|----------|------|-----------------|--------|-------------|--------|------------|-------------|-------|
| very fine | <0.063mm | fine | 0.063mm - 0.1mm | medium | 0.1mm - 2mm | coarse | 2mm - 10mm | very coarse | >10mm |
|-----------|----------|------|-----------------|--------|-------------|--------|------------|-------------|-------|

| Lab Sample No(s) | Customer Sample Ref. | Depth (m)   | Colour      | Description | Grain size       | Inclusions | Inclusions 2 |
|------------------|----------------------|-------------|-------------|-------------|------------------|------------|--------------|
| 13858031         | TANK                 | 0.70 - 0.80 | Dark Brown  | Clay Loam   | 0.002 - 0.063 mm | Stones     | Vegetation   |
| 13858032         | TANK                 | 0.30 - 0.40 | Light Brown | Loamy Sand  | 0.063 - 2.00 mm  | Brick      | Stones       |

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Order Number: 1778/erw  
Report Number: 373646  
Superseded Report: 372234

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|                    |          |
|--------------------|----------|
| Order Number:      | 1778/erw |
| Report Number:     | 373646   |
| Superseded Report: | 372234   |

[illegible]

## CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104  
 Job: H\_GRSOLVE\_BRE-187  
 Client Reference: 1778

Location: Total Fitness Tank  
 Customer: Ground Solve  
 Attention: Elgan Williams

Order Number: 1778/erw  
 Report Number: 373646  
 Superseded Report: 372234

## Semi Volatile Organic Compounds

| Results Legend              |                                                                                                                                                                  | Customer Sample R | TANK        | TANK        |  |  |  |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|-------------|--|--|--|
| #                           | ISO17025 accredited.                                                                                                                                             | Depth (m)         | 0.30 - 0.40 | 0.70 - 0.80 |  |  |  |
| M                           | mCERTS accredited.                                                                                                                                               | Sample Type       | Soil/Solid  | Soil/Solid  |  |  |  |
| aq                          | Aqueous / settled sample.                                                                                                                                        | Date Sampled      | 27/07/2016  | 27/07/2016  |  |  |  |
| dis.filt                    | Dissolved / filtered sample.                                                                                                                                     | Sample Time       |             |             |  |  |  |
| tot.unfilt                  | Total / unfiltered sample.                                                                                                                                       | Date Received     | 27/07/2016  | 27/07/2016  |  |  |  |
| *                           | Subcontracted test.                                                                                                                                              | SDG Ref           | 160727-104  | 160727-104  |  |  |  |
| **                          | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery | Lab Sample No.(s) | 13858032    | 13858031    |  |  |  |
| (F)                         | Trigger breach confirmed                                                                                                                                         | AGS Reference     |             |             |  |  |  |
| 1-54                        | Sample deviation (see appendix)                                                                                                                                  |                   |             |             |  |  |  |
| Component                   | LOD/Units                                                                                                                                                        | Method            |             |             |  |  |  |
| Phenol                      | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Pentachlorophenol           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| n-Nitroso-n-dipropylamine   | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Nitrobenzene                | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Isophorone                  | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Hexachloroethane            | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Hexachlorocyclopentadiene   | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Hexachlorobutadiene         | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Hexachlorobenzene           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| n-Dioctyl phthalate         | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Dimethyl phthalate          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Diethyl phthalate           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| n-Dibutyl phthalate         | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Dibenzofuran                | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Carbazole                   | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Butylbenzyl phthalate       | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| bis(2-Ethylhexyl) phthalate | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| bis(2-Chloroethoxy)methane  | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| bis(2-Chloroethyl)ether     | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| Azobenzene                  | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Nitrophenol               | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Nitroaniline              | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Methylphenol              | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Chlorophenylphenylether   | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Chloroaniline             | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Chloro-3-methylphenol     | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 4-Bromophenylphenylether    | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 3-Nitroaniline              | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 2-Nitrophenol               | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 2-Nitroaniline              | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 2-Methylphenol              | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |
| 1,2,4-Trichlorobenzene      | <100<br>µg/kg                                                                                                                                                    | TM157             | <100        | <100        |  |  |  |

## CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104  
 Job: H\_GRSOLVE\_BRE-187  
 Client Reference: 1778

Location: Total Fitness Tank  
 Customer: Ground Solve  
 Attention: Elgan Williams

Order Number: 1778/ew  
 Report Number: 373646  
 Superseded Report: 372234

## Semi Volatile Organic Compounds

| Results Legend               |                                                                                                                                                                  | Customer Sample R | TANK | TANK |  |  |  |  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------|------|--|--|--|--|
| #                            | ISO17025 accredited.                                                                                                                                             |                   |      |      |  |  |  |  |
| M                            | mCERTS accredited.                                                                                                                                               |                   |      |      |  |  |  |  |
| AQ                           | Aqueous / settled sample.                                                                                                                                        |                   |      |      |  |  |  |  |
| dis.filt                     | Dissolved / filtered sample.                                                                                                                                     |                   |      |      |  |  |  |  |
| tot.unfilt                   | Total / unfiltered sample.                                                                                                                                       |                   |      |      |  |  |  |  |
| *                            | Subcontracted test.                                                                                                                                              |                   |      |      |  |  |  |  |
| **                           | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery |                   |      |      |  |  |  |  |
| (F)                          | Trigger breach confirmed                                                                                                                                         |                   |      |      |  |  |  |  |
| 1-5&16                       | Sample deviation (see appendix)                                                                                                                                  |                   |      |      |  |  |  |  |
| AGS Reference                |                                                                                                                                                                  |                   |      |      |  |  |  |  |
| Component                    | LOD/Units                                                                                                                                                        | Method            |      |      |  |  |  |  |
| 2-Chlorophenol               | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,6-Dinitrotoluene           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,4-Dinitrotoluene           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,4-Dimethylphenol           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,4-Dichlorophenol           | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,4,6-Trichlorophenol        | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2,4,5-Trichlorophenol        | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 1,4-Dichlorobenzene          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 1,3-Dichlorobenzene          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 1,2-Dichlorobenzene          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2-Chloronaphthalene          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| 2-Methylnaphthalene          | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Acenaphthylene               | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Acenaphthene                 | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Anthracene                   | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Benzo(a)anthracene           | <100<br>µg/kg                                                                                                                                                    | TM157             | 236  | <100 |  |  |  |  |
| Benzo(b)fluoranthene         | <100<br>µg/kg                                                                                                                                                    | TM157             | 224  | <100 |  |  |  |  |
| Benzo(k)fluoranthene         | <100<br>µg/kg                                                                                                                                                    | TM157             | 217  | <100 |  |  |  |  |
| Benzo(a)pyrene               | <100<br>µg/kg                                                                                                                                                    | TM157             | 343  | <100 |  |  |  |  |
| Benzo(g,h,i)perylene         | <100<br>µg/kg                                                                                                                                                    | TM157             | 298  | <100 |  |  |  |  |
| Chrysene                     | <100<br>µg/kg                                                                                                                                                    | TM157             | 268  | <100 |  |  |  |  |
| Fluoranthene                 | <100<br>µg/kg                                                                                                                                                    | TM157             | 616  | <100 |  |  |  |  |
| Fluorene                     | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Indeno(1,2,3-cd)pyrene       | <100<br>µg/kg                                                                                                                                                    | TM157             | 321  | <100 |  |  |  |  |
| Phenanthrene                 | <100<br>µg/kg                                                                                                                                                    | TM157             | 211  | <100 |  |  |  |  |
| Pyrene                       | <100<br>µg/kg                                                                                                                                                    | TM157             | 669  | <100 |  |  |  |  |
| Naphthalene                  | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Dibenzo(a,h)anthracene       | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
| Bis(2-chloroisopropyl) ether | <100<br>µg/kg                                                                                                                                                    | TM157             | <100 | <100 |  |  |  |  |
|                              |                                                                                                                                                                  |                   |      |      |  |  |  |  |
|                              |                                                                                                                                                                  |                   |      |      |  |  |  |  |
|                              |                                                                                                                                                                  |                   |      |      |  |  |  |  |

## CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104  
 Job: H\_GRSOLVE\_BRE-187  
 Client Reference: 1778

Location: Total Fitness Tank  
 Customer: Ground Solve  
 Attention: Elgan Williams

Order Number: 1778/erw  
 Report Number: 373646  
 Superseded Report: 372234

## TPH CWG (S)

| Results Legend                       |                                                                                                                                                                  | Customer Sample R |        | TANK  | TANK |  |  |  |  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|-------|------|--|--|--|--|
| #                                    | ISO17825 accredited.                                                                                                                                             |                   |        |       |      |  |  |  |  |
| M                                    | mCERTS accredited.                                                                                                                                               |                   |        |       |      |  |  |  |  |
| aq                                   | Aqueous / settled sample.                                                                                                                                        |                   |        |       |      |  |  |  |  |
| dis.filt                             | Dissolved / filtered sample.                                                                                                                                     |                   |        |       |      |  |  |  |  |
| tot.unfilt                           | Total / unfiltered sample.                                                                                                                                       |                   |        |       |      |  |  |  |  |
| *                                    | Subcontracted test.                                                                                                                                              |                   |        |       |      |  |  |  |  |
| **                                   | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery |                   |        |       |      |  |  |  |  |
| (F)                                  | Trigger breach confirmed                                                                                                                                         |                   |        |       |      |  |  |  |  |
| 1-54.9%                              | Sample deviation (see appendix)                                                                                                                                  |                   |        |       |      |  |  |  |  |
| AGS Reference                        |                                                                                                                                                                  | Lab Sample No.(s) |        |       |      |  |  |  |  |
| Component                            | LOD/Units                                                                                                                                                        | Method            |        |       |      |  |  |  |  |
| GRO Surrogate % recovery**           | %                                                                                                                                                                | TM089             | 86     | 84    |      |  |  |  |  |
| GRO TOT (Moisture Corrected)         | <44 µg/kg                                                                                                                                                        | TM089             | <44    | <44   |      |  |  |  |  |
| Methyl tertiary butyl ether (MTBE)   | <5 µg/kg                                                                                                                                                         | TM089             | <5     | <5    |      |  |  |  |  |
| Benzene                              | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Toluene                              | <2 µg/kg                                                                                                                                                         | TM089             | <2     | <2    |      |  |  |  |  |
| Ethylbenzene                         | <3 µg/kg                                                                                                                                                         | TM089             | <3     | <3    |      |  |  |  |  |
| m,p-Xylene                           | <6 µg/kg                                                                                                                                                         | TM089             | <6     | <6    |      |  |  |  |  |
| o-Xylene                             | <3 µg/kg                                                                                                                                                         | TM089             | <3     | <3    |      |  |  |  |  |
| sum of detected mpo xylene by GC     | <9 µg/kg                                                                                                                                                         | TM089             | <9     | <9    |      |  |  |  |  |
| sum of detected BTEX by GC           | <24 µg/kg                                                                                                                                                        | TM089             | <24    | <24   |      |  |  |  |  |
| Aliphatics >C5-C6                    | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aliphatics >C6-C8                    | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aliphatics >C8-C10                   | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aliphatics >C10-C12                  | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aliphatics >C12-C16                  | <100 µg/kg                                                                                                                                                       | TM173             | 772    | <100  |      |  |  |  |  |
| Aliphatics >C16-C21                  | <100 µg/kg                                                                                                                                                       | TM173             | 4820   | <100  |      |  |  |  |  |
| Aliphatics >C21-C35                  | <100 µg/kg                                                                                                                                                       | TM173             | 79600  | <100  |      |  |  |  |  |
| Aliphatics >C35-C44                  | <100 µg/kg                                                                                                                                                       | TM173             | 35700  | <100  |      |  |  |  |  |
| Total Aliphatics >C12-C44            | <100 µg/kg                                                                                                                                                       | TM173             | 121000 | <100  |      |  |  |  |  |
| Aromatics >EC5-EC7                   | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aromatics >EC7-EC8                   | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aromatics >EC8-EC10                  | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aromatics >EC10-EC12                 | <10 µg/kg                                                                                                                                                        | TM089             | <10    | <10   |      |  |  |  |  |
| Aromatics >EC12-EC16                 | <100 µg/kg                                                                                                                                                       | TM173             | 337    | 292   |      |  |  |  |  |
| Aromatics >EC16-EC21                 | <100 µg/kg                                                                                                                                                       | TM173             | 3950   | 914   |      |  |  |  |  |
| Aromatics >EC21-EC35                 | <100 µg/kg                                                                                                                                                       | TM173             | 82000  | 6120  |      |  |  |  |  |
| Aromatics >EC35-EC44                 | <100 µg/kg                                                                                                                                                       | TM173             | 63300  | 3880  |      |  |  |  |  |
| Aromatics >EC40-EC44                 | <100 µg/kg                                                                                                                                                       | TM173             | 25900  | 1830  |      |  |  |  |  |
| Total Aromatics >EC12-EC44           | <100 µg/kg                                                                                                                                                       | TM173             | 150000 | 11200 |      |  |  |  |  |
| Total Aliphatics & Aromatics >C5-C44 | <100 µg/kg                                                                                                                                                       | TM173             | 270000 | 11200 |      |  |  |  |  |
|                                      |                                                                                                                                                                  |                   |        |       |      |  |  |  |  |
|                                      |                                                                                                                                                                  |                   |        |       |      |  |  |  |  |

**CERTIFICATE OF ANALYSIS**

Validated

**SDG:** 160727-104  
**Job:** H\_GRSOLVE\_BRE-187  
**Client Reference:** 1778

**Location:** Total Fitness Tank  
**Customer:** Ground Solve  
**Attention:** Elgan Williams

**Order Number:** 1778/erw  
**Report Number:** 373646  
**Superseded Report:** 372234

**VOC MS (S)**

| Results Legend              |                                                                                                                                                                  | Customer Sample R                                                                                        | TANK        | TANK        |  |  |  |  |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------|-------------|--|--|--|--|
| #                           | ISO17025 accredited.                                                                                                                                             | Depth (m)<br>Sample Type<br>Date Sampled<br>Sample Time<br>Date Received<br>SDG Ref<br>Lab Sample No.(s) | 0.30 - 0.40 | 0.70 - 0.80 |  |  |  |  |
| M                           | mCERTS accredited.                                                                                                                                               |                                                                                                          | Soil/Solid  | Soil/Solid  |  |  |  |  |
| aq                          | Aqueous / settled sample.                                                                                                                                        |                                                                                                          | 27/07/2016  | 27/07/2016  |  |  |  |  |
| dis.filt                    | Dissolved / filtered sample.                                                                                                                                     |                                                                                                          |             |             |  |  |  |  |
| tot.unfilt                  | Total / unfiltered sample.                                                                                                                                       |                                                                                                          |             |             |  |  |  |  |
| *                           | Subcontracted test.                                                                                                                                              |                                                                                                          |             |             |  |  |  |  |
| **                          | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery |                                                                                                          | 27/07/2016  | 27/07/2016  |  |  |  |  |
| (F)                         | Trigger breach confirmed                                                                                                                                         |                                                                                                          | 160727-104  | 160727-104  |  |  |  |  |
| 1-55                        | Sample deviation (see appendix)                                                                                                                                  |                                                                                                          | 13858032    | 13858031    |  |  |  |  |
|                             |                                                                                                                                                                  | AGS Reference                                                                                            |             |             |  |  |  |  |
| Component                   | LOD/Units                                                                                                                                                        | Method                                                                                                   |             |             |  |  |  |  |
| Dibromofluoromethane**      | %                                                                                                                                                                | TM116                                                                                                    | 112         | 119         |  |  |  |  |
| Toluene-d8**                | %                                                                                                                                                                | TM116                                                                                                    | 105         | 111         |  |  |  |  |
| 4-Bromofluorobenzene**      | %                                                                                                                                                                | TM116                                                                                                    | 83.8        | 88.7        |  |  |  |  |
| Dichlorodifluoromethane     | <6 µg/kg                                                                                                                                                         | TM116                                                                                                    | <6          | <6          |  |  |  |  |
| Chloromethane               | <7 µg/kg                                                                                                                                                         | TM116                                                                                                    | <7          | <7          |  |  |  |  |
| Vinyl Chloride              | <6 µg/kg                                                                                                                                                         | TM116                                                                                                    | <6          | <6          |  |  |  |  |
| Bromomethane                | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Chloroethane                | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Trichlorofluoromethane      | <6 µg/kg                                                                                                                                                         | TM116                                                                                                    | <6          | <6          |  |  |  |  |
| 1,1-Dichloroethene          | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Carbon Disulphide           | <7 µg/kg                                                                                                                                                         | TM116                                                                                                    | <7          | <7          |  |  |  |  |
| Dichloromethane             | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Methyl Tertiary Butyl Ether | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| trans-1,2-Dichloroethene    | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| 1,1-Dichloroethane          | <8 µg/kg                                                                                                                                                         | TM116                                                                                                    | <8          | <8          |  |  |  |  |
| cis-1,2-Dichloroethene      | <6 µg/kg                                                                                                                                                         | TM116                                                                                                    | <6          | <6          |  |  |  |  |
| 2,2-Dichloropropane         | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Bromochloromethane          | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Chloroform                  | <8 µg/kg                                                                                                                                                         | TM116                                                                                                    | <8          | <8          |  |  |  |  |
| 1,1,1-Trichloroethane       | <7 µg/kg                                                                                                                                                         | TM116                                                                                                    | <7          | <7          |  |  |  |  |
| 1,1-Dichloropropene         | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Carbontetrachloride         | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| 1,2-Dichloroethane          | <5 µg/kg                                                                                                                                                         | TM116                                                                                                    | <5          | <5          |  |  |  |  |
| Benzene                     | <9 µg/kg                                                                                                                                                         | TM116                                                                                                    | <9          | <9          |  |  |  |  |
| Trichloroethene             | <9 µg/kg                                                                                                                                                         | TM116                                                                                                    | <9          | <9          |  |  |  |  |
| 1,2-Dichloropropane         | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Dibromomethane              | <9 µg/kg                                                                                                                                                         | TM116                                                                                                    | <9          | <9          |  |  |  |  |
| Bromodichloromethane        | <7 µg/kg                                                                                                                                                         | TM116                                                                                                    | <7          | <7          |  |  |  |  |
| cis-1,3-Dichloropropene     | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| Toluene                     | <7 µg/kg                                                                                                                                                         | TM116                                                                                                    | <7          | <7          |  |  |  |  |
| trans-1,3-Dichloropropene   | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |
| 1,1,2-Trichloroethane       | <10 µg/kg                                                                                                                                                        | TM116                                                                                                    | <10         | <10         |  |  |  |  |

## CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104  
 Job: H\_GRSOLVE\_BRE-187  
 Client Reference: 1778

Location: Total Fitness Tank  
 Customer: Ground Solve  
 Attention: Elgan Williams

Order Number: 1778/erw  
 Report Number: 373646  
 Superseded Report: 372234

## VOC MS (S)

| Results Legend                  |                                                                                                                                                                  | Customer Sample R | TANK        | TANK        |  |  |  |  |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|-------------|--|--|--|--|
| #                               | ISO17025 accredited.                                                                                                                                             | Depth (m)         | 0.30 - 0.40 | 0.70 - 0.80 |  |  |  |  |
| M                               | nCERTS accredited.                                                                                                                                               | Sample Type       | Soil/Solid  | Soil/Solid  |  |  |  |  |
| AQ                              | Aqueous / settled sample.                                                                                                                                        | Date Sampled      | 27/07/2016  | 27/07/2016  |  |  |  |  |
| dis.filt                        | Dissolved / filtered sample.                                                                                                                                     | Sample Time       |             |             |  |  |  |  |
| tot.unfilt                      | Total / unfiltered sample.                                                                                                                                       | Date Received     | 27/07/2016  | 27/07/2016  |  |  |  |  |
| +                               | Subcontracted test.                                                                                                                                              | SDG Ref           | 160727-104  | 160727-104  |  |  |  |  |
| ..                              | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery | Lab Sample No.(s) | 13858032    | 13858031    |  |  |  |  |
| (F)                             | Trigger breach confirmed                                                                                                                                         | AGS Reference     |             |             |  |  |  |  |
| 1-45-150                        | Sample deviation (see appendix)                                                                                                                                  |                   |             |             |  |  |  |  |
| Component                       | LOD/Units                                                                                                                                                        | Method            |             |             |  |  |  |  |
| 1,3-Dichloropropane             | <7 µg/kg                                                                                                                                                         | TM116             | <7          | <7          |  |  |  |  |
| Tetrachloroethene               | <5 µg/kg                                                                                                                                                         | TM116             | <5          | <5          |  |  |  |  |
| Dibromochloromethane            | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 1,2-Dibromoethane               | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Chlorobenzene                   | <5 µg/kg                                                                                                                                                         | TM116             | <5          | <5          |  |  |  |  |
| 1,1,1,2-Tetrachloroethane       | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Ethylbenzene                    | <4 µg/kg                                                                                                                                                         | TM116             | <4          | <4          |  |  |  |  |
| p/m-Xylene                      | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| o-Xylene                        | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Styrene                         | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Bromoform                       | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Isopropylbenzene                | <5 µg/kg                                                                                                                                                         | TM116             | <5          | <5          |  |  |  |  |
| 1,1,2,2-Tetrachloroethane       | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 1,2,3-Trichloropropane          | <16 µg/kg                                                                                                                                                        | TM116             | <16         | <16         |  |  |  |  |
| Bromobenzene                    | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| Propylbenzene                   | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 2-Chlorotoluene                 | <9 µg/kg                                                                                                                                                         | TM116             | <9          | <9          |  |  |  |  |
| 1,3,5-Trimethylbenzene          | <8 µg/kg                                                                                                                                                         | TM116             | <8          | <8          |  |  |  |  |
| 4-Chlorotoluene                 | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| tert-Butylbenzene               | <14 µg/kg                                                                                                                                                        | TM116             | <14         | <14         |  |  |  |  |
| 1,2,4-Trimethylbenzene          | <9 µg/kg                                                                                                                                                         | TM116             | <9          | <9          |  |  |  |  |
| sec-Butylbenzene                | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 4-Isopropyltoluene              | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 1,3-Dichlorobenzene             | <8 µg/kg                                                                                                                                                         | TM116             | <8          | <8          |  |  |  |  |
| 1,4-Dichlorobenzene             | <5 µg/kg                                                                                                                                                         | TM116             | <5          | <5          |  |  |  |  |
| n-Butylbenzene                  | <11 µg/kg                                                                                                                                                        | TM116             | <11         | <11         |  |  |  |  |
| 1,2-Dichlorobenzene             | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 1,2-Dibromo-3-chloroprop<br>ane | <14 µg/kg                                                                                                                                                        | TM116             | <14         | <14         |  |  |  |  |
| Tert-amyl methyl ether          | <10 µg/kg                                                                                                                                                        | TM116             | <10         | <10         |  |  |  |  |
| 1,2,4-Trichlorobenzene          | <20 µg/kg                                                                                                                                                        | TM116             | <20         | <20         |  |  |  |  |
| Hexachlorobutadiene             | <20 µg/kg                                                                                                                                                        | TM116             | <20         | <20         |  |  |  |  |
| Naphthalene                     | <13 µg/kg                                                                                                                                                        | TM116             | <13         | <13         |  |  |  |  |

**SDG:** 160727-104  
**Job:** H\_GRSOLVE\_BRE-187  
**Client Reference:** 1778

**Location:** Total Fitness Tank  
**Customer:** Ground Solve  
**Attention:** Elgan Williams

**Order Number:** 1778/erw  
**Report Number:** 373646  
**Superseded Report:** 372234

**VOC MS (S)**

[illegible]

CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104 Location: Total Fitness Tank Order Number: 1778/erw  
 Job: H\_GRSOLVE\_BRE-187 Customer: Ground Solve Report Number: 373646  
 Client Reference: 1778 Attention: Elgan Williams Superseded Report: 372234

Asbestos Identification - Solid Samples

|                                                                                                                           |                                                                                                               | Date of Analysis | Analysed By           | Comments                 | Amosite<br>(Brown)<br>Asbestos | Chrysotile<br>(White)<br>Asbestos | Crocidolite<br>(Blue) Asbestos | Fibrous<br>Actinolite | Fibrous<br>Anthophyllite | Fibrous<br>Tremolite | Non-Asbestos<br>Fibre |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------|-----------------------|--------------------------|--------------------------------|-----------------------------------|--------------------------------|-----------------------|--------------------------|----------------------|-----------------------|
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | TANK<br>0.30 - 0.40<br>SOLID<br>27/07/2016 00:00:00<br>29/07/2016 08:38:48<br>160727-104<br>13858032<br>TM048 | 05/08/16         | Tomasz<br>Pawlikowski | Loose fibres in<br>soil. | Not Detected<br>(#)            | Trace (#)                         | Not Detected<br>(#)            | Not Detected<br>(#)   | Not Detected<br>(#)      | Not Detected<br>(#)  | Not Detected          |
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | TANK<br>0.70 - 0.80<br>SOLID<br>27/07/2016 00:00:00<br>29/07/2016 08:26:05<br>160727-104<br>13858031<br>TM048 | 05/08/16         | Tomasz<br>Pawlikowski | -                        | Not Detected<br>(#)            | Not Detected<br>(#)               | Not Detected<br>(#)            | Not Detected<br>(#)   | Not Detected<br>(#)      | Not Detected<br>(#)  | Not Detected          |

**CERTIFICATE OF ANALYSIS**

Validated

**SDG:** 160727-104  
**Job:** H\_GRSOLVE\_BRE-187  
**Client Reference:** 1778

**Location:** Total Fitness Tank  
**Customer:** Ground Solve  
**Attention:** Elgan Williams

**Order Number:** 1778/erw  
**Report Number:** 373646  
**Superseded Report:** 372234

**Asbestos Quantification - Full**

|                                                                                                                           |                                                                                                                | Additional<br>Asbestos<br>Components<br>(Using TM048) | Analysis<br>Comments | Asbestos<br>Quantification -<br>Gravimetric - % | Asbestos<br>Quantification -<br>PCM<br>Evaluation - % | Asbestos<br>Quantification -<br>Total - % |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------|-------------------------------------------------|-------------------------------------------------------|-------------------------------------------|
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | TANK<br>0.30 - 0.40<br>SOLID<br>27/07/2016 00:00:00<br>11/08/2016 10:42:10<br>160727-104<br>13858032<br>TM 304 | None (#)                                              | N/C                  | <0.001 (#)                                      | <0.001 (#)                                            | <0.001 (#)                                |

**CERTIFICATE OF ANALYSIS**

Validated

|                          |                   |                   |                    |                           |          |
|--------------------------|-------------------|-------------------|--------------------|---------------------------|----------|
| <b>SDG:</b>              | 160727-104        | <b>Location:</b>  | Total Fitness Tank | <b>Order Number:</b>      | 1778/erw |
| <b>Job:</b>              | H_GRSOLVE_BRE-187 | <b>Customer:</b>  | Ground Solve       | <b>Report Number:</b>     | 373646   |
| <b>Client Reference:</b> | 1778              | <b>Attention:</b> | Elgan Williams     | <b>Superseded Report:</b> | 372234   |

**Table of Results - Appendix**

| Method No | Reference                                                                                                                   | Description                                                                                                                             | Wet/Dry Sample <sup>1</sup> | Surrogate Corrected |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|
| ASB_PREP  |                                                                                                                             |                                                                                                                                         |                             |                     |
| PM001     |                                                                                                                             | Preparation of Samples for Metals Analysis                                                                                              |                             |                     |
| PM024     | Modified BS 1377                                                                                                            | Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material                                   |                             |                     |
| TM 304    |                                                                                                                             |                                                                                                                                         |                             |                     |
| TM048     | HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures                                      | Identification of Asbestos in Bulk Material                                                                                             |                             |                     |
| TM062 (S) | National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9 | Determination of Phenols in Soils by HPLC                                                                                               |                             |                     |
| TM089     | Modified: US EPA Methods 8020 & 602                                                                                         | Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)                               |                             |                     |
| TM116     | Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602                                                                    | Determination of Volatile Organic Compounds by Headspace / GC-MS                                                                        |                             |                     |
| TM132     | In - house Method                                                                                                           | ELTRA CS800 Operators Guide                                                                                                             |                             |                     |
| TM133     | BS 1377: Part 3 1990;BS 6068-2.5                                                                                            | Determination of pH in Soil and Water using the GLpH pH Meter                                                                           |                             |                     |
| TM136     | Method 17.10, Second Site property, March 2003                                                                              | Determination of Sulphur by HPLC                                                                                                        |                             |                     |
| TM151     | Method 3500D, AWWA/APHA, 20th Ed., 1999                                                                                     | Determination of Hexavalent Chromium using Kone analyser                                                                                |                             |                     |
| TM153     | Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999                                                                            | Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser |                             |                     |
| TM157     | HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).                                            | Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone                                                          |                             |                     |
| TM173     | Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria                            | Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID                                                        |                             |                     |
| TM180     | Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)                                       | The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique                                     |                             |                     |
| TM181     | US EPA Method 6010B                                                                                                         | Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES                                                                        |                             |                     |
| TM218     | Microwave extraction – EPA method 3546                                                                                      | Microwave extraction - EPA method 3546                                                                                                  |                             |                     |
| TM243     |                                                                                                                             | Mixed Anions In Soils By Kone                                                                                                           |                             |                     |

<sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

Validated

SDG: 160727-104  
Job: H\_GRSOLVE\_BRE-187  
Client Reference: 1778

Location: Total Fitness Tank  
Customer: Ground Solve  
Attention: Elgan Williams

Order Number: 1778/erw  
Report Number: 373646  
Superseded Report: 372234

Test Completion Dates

| Lab Sample No(s)                    | 13858031    | 13858032    |
|-------------------------------------|-------------|-------------|
| Customer Sample Ref.                | TANK        | TANK        |
| AGS Ref.                            |             |             |
| Depth                               | 0.70 - 0.80 | 0.30 - 0.40 |
| Type                                | SOLID       | SOLID       |
| Anions by Kone (soil)               | 02-Aug-2016 | 02-Aug-2016 |
| Asbestos ID in Solid Samples        | 05-Aug-2016 | 05-Aug-2016 |
| Asbestos Quantification - Full      |             | 16-Aug-2016 |
| Chromium III                        | 03-Aug-2016 | 03-Aug-2016 |
| Cyanide Comp/Free/Total/Thiocyanate | 04-Aug-2016 | 04-Aug-2016 |
| Easily Liberated Sulphide           | 04-Aug-2016 | 04-Aug-2016 |
| Elemental Sulphur                   | 03-Aug-2016 | 03-Aug-2016 |
| EPH CWG (Aliphatic) GC (S)          | 03-Aug-2016 | 03-Aug-2016 |
| EPH CWG (Aromatic) GC (S)           | 03-Aug-2016 | 04-Aug-2016 |
| GRO by GC-FID (S)                   | 05-Aug-2016 | 05-Aug-2016 |
| Hexavalent Chromium (s)             | 03-Aug-2016 | 03-Aug-2016 |
| Metals in solid samples by OES      | 02-Aug-2016 | 02-Aug-2016 |
| PAH by GCMS                         | 02-Aug-2016 | 02-Aug-2016 |
| pH                                  | 05-Aug-2016 | 05-Aug-2016 |
| Phenols by HPLC (S)                 | 04-Aug-2016 | 04-Aug-2016 |
| Sample description                  | 29-Jul-2016 | 29-Jul-2016 |
| Semi Volatile Organic Compounds     | 03-Aug-2016 | 03-Aug-2016 |
| Total Organic Carbon                | 05-Aug-2016 | 05-Aug-2016 |
| TPH CWG GC (S)                      | 05-Aug-2016 | 05-Aug-2016 |
| VOC MS (S)                          | 05-Aug-2016 | 05-Aug-2016 |

**Job:** 160727-104  
**Client Reference:** H\_GRSOLVE\_BRE-187  
**Job:** 1778

**Location:** Total Fitness Tank  
**Customer:** Ground Solve  
**Attention:** Elgan Williams

**Order Number:** 1778/erw  
**Report Number:** 373646  
**Superseded Report:** 372234

## Appendix

## General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH<sub>4</sub> by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

## Sample Deviations

|   |                                                                 |
|---|-----------------------------------------------------------------|
| 1 | Container with Headspace provided for volatiles analysis        |
| 2 | Incorrect container received                                    |
| 3 | Deviation from method                                           |
| 4 | Holding time exceeded before sample received                    |
| 5 | Samples exceeded holding time before preservation was performed |
| 6 | Sampled on date not provided                                    |
| * | Sample holding time exceeded in laboratory                      |
| @ | Sample holding time exceeded due to sampled on date             |
| & | Sample Holding Time exceeded - Late arrival of instructions.    |

## Asbestos

### Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

| Asbestos Type         | Common Name    |
|-----------------------|----------------|
| Chrysotile            | White Asbestos |
| Amosite               | Brown Asbestos |
| Crocidolite           | Blue Asbestos  |
| Fibrous Actinolite    | -              |
| Fibrous Anthophyllite | -              |
| Fibrous Tremolite     | -              |

### Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:  
 - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.