

## **APPENDIX G**

### **LABORATORY CERTIFICATES FOR SOIL ANALYSIS**

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## FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 22/06462/1

**Amendments:** Request for Additional Analysis

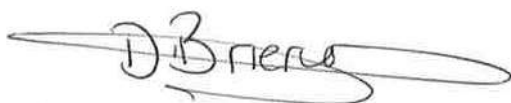
**Envirolab Job Number:** 22/06462  
**Issue Number:** 2

**Date:** 18 July, 2022

**Client:** RSK Environment Ltd Romsey  
Unit 18 Basepoint Abbey Enterprise Centre  
Premier Way  
Romsey  
Hampshire  
SO51 9AQ

**Project Manager:** All RSK Southampton/James Lilley/Melanie Lyons  
**Project Name:** Bunting Gardens, Waterloooville  
**Project Ref:** 305258  
**Order No:** N/A  
**Date Samples Received:** 29/06/22  
**Date Instructions Received:** 01/07/22  
**Date Analysis Completed:** 18/07/22

**Approved by:**



Danielle Brierley  
Deputy Client Services Supervisor

Envirolab Job Number: 22/06462

Client Project Name: Bunting Gardens, Waterloooville

Client Project Ref: 305258

| Lab Sample ID                                       | 22/06462/1 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/14 | Units | Limit of Detection | Method ref |
|-----------------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|-------|--------------------|------------|
| Client Sample No                                    | 1          | 1          | 1          | 1          | 2          | 1           | 1           |       |                    |            |
| Client Sample ID                                    | TP1        | TP2a       | TP2a       | WS1        | WS1        | WS4         | WS5         |       |                    |            |
| Depth to Top                                        | 0.20       | 0.20       | 0.30       | 0.30       | 1.20       | 0.20        | 0.20        |       |                    |            |
| Depth To Bottom                                     | 0.30       | 0.30       | 0.40       | 0.40       | 1.30       | 0.30        | 0.30        |       |                    |            |
| Date Sampled                                        | 23-Jun-22  | 23-Jun-22  | 23-Jun-22  | 24-Jun-22  | 24-Jun-22  | 24-Jun-22   | 24-Jun-22   |       |                    |            |
| Sample Type                                         | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES   | Soil - ES   |       |                    |            |
| Sample Matrix Code                                  | 4AE        | 4AE        | 5AE        | 4AE        | 4AE        | 4AE         | 4AE         |       |                    |            |
| % Stones >10mm <sub>A</sub>                         | <0.1       | <0.1       | <0.1       | <0.1       | <0.1       | <0.1        | -           | % w/w | 0.1                | A-T-044    |
| pH <sub>D</sub> <sup>M#</sup>                       | 7.71       | 7.06       | -          | 8.05       | 7.75       | 7.59        | -           | pH    | 0.01               | A-T-031s   |
| Sulphate (water sol 2:1) <sub>D</sub> <sup>M#</sup> | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | g/l   | 0.01               | A-T-026s   |
| Sulphate (acid soluble) <sub>D</sub> <sup>M#</sup>  | 340        | 390        | -          | 330        | 230        | 450         | -           | mg/kg | 200                | A-T-028s   |
| Total Organic Carbon <sub>D</sub> <sup>M#</sup>     | -          | -          | 0.34       | 0.77       | -          | -           | -           | % w/w | 0.03               | A-T-032s   |
| Arsenic <sub>D</sub> <sup>M#</sup>                  | 9          | 5          | -          | 4          | 2          | 22          | -           | mg/kg | 1                  | A-T-024s   |
| Cadmium <sub>D</sub> <sup>M#</sup>                  | 1.3        | 1.0        | -          | 1.2        | 1.2        | 2.0         | -           | mg/kg | 0.5                | A-T-024s   |
| Copper <sub>D</sub> <sup>M#</sup>                   | 10         | 12         | -          | 12         | 16         | 13          | -           | mg/kg | 1                  | A-T-024s   |
| Chromium <sub>D</sub> <sup>M#</sup>                 | 29         | 43         | -          | 42         | 54         | 47          | -           | mg/kg | 1                  | A-T-024s   |
| Chromium (hexavalent) <sub>D</sub>                  | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-040s   |
| Lead <sub>D</sub> <sup>M#</sup>                     | 33         | 22         | -          | 29         | 39         | 31          | -           | mg/kg | 1                  | A-T-024s   |
| Mercury <sub>D</sub>                                | <0.17      | <0.17      | -          | <0.17      | <0.17      | <0.17       | -           | mg/kg | 0.17               | A-T-024s   |
| Nickel <sub>D</sub> <sup>M#</sup>                   | 14         | 25         | -          | 26         | 30         | 26          | -           | mg/kg | 1                  | A-T-024s   |
| Selenium <sub>D</sub> <sup>M#</sup>                 | <1         | 1          | -          | <1         | 2          | 5           | -           | mg/kg | 1                  | A-T-024s   |
| Zinc <sub>D</sub> <sup>M#</sup>                     | 61         | 49         | -          | 44         | 43         | 66          | -           | mg/kg | 5                  | A-T-024s   |

Envirolab Job Number: 22/06462

Client Project Name: Bunting Gardens, Waterloooville

Client Project Ref: 305258

| Lab Sample ID                                                   | 22/06462/1 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/14 | Units | Limit of Detection | Method ref |
|-----------------------------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|-------|--------------------|------------|
| Client Sample No                                                | 1          | 1          | 1          | 1          | 2          | 1           | 1           |       |                    |            |
| Client Sample ID                                                | TP1        | TP2a       | TP2a       | WS1        | WS1        | WS4         | WS5         |       |                    |            |
| Depth to Top                                                    | 0.20       | 0.20       | 0.30       | 0.30       | 1.20       | 0.20        | 0.20        |       |                    |            |
| Depth To Bottom                                                 | 0.30       | 0.30       | 0.40       | 0.40       | 1.30       | 0.30        | 0.30        |       |                    |            |
| Date Sampled                                                    | 23-Jun-22  | 23-Jun-22  | 23-Jun-22  | 24-Jun-22  | 24-Jun-22  | 24-Jun-22   | 24-Jun-22   |       |                    |            |
| Sample Type                                                     | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES   | Soil - ES   |       |                    |            |
| Sample Matrix Code                                              | 4AE        | 4AE        | 5AE        | 4AE        | 4AE        | 4AE         | 4AE         |       |                    |            |
| Asbestos in Soil (inc. matrix)                                  |            |            |            |            |            |             |             |       |                    |            |
| Asbestos in soil <sup>#</sup>                                   | -          | NAD        | -          | NAD        | -          | -           | NAD         |       |                    | A-T-045    |
| Asbestos Matrix (visual) <sub>D</sub>                           | -          | -          | -          | -          | -          | -           | -           |       |                    | A-T-045    |
| Asbestos Matrix (microscope) <sub>D</sub>                       | -          | -          | -          | -          | -          | -           | -           |       |                    | A-T-045    |
| Asbestos ACM - Suitable for Water Absorption Test? <sub>D</sub> | -          | N/A        | -          | N/A        | -          | -           | N/A         |       |                    | A-T-045    |

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| Lab Sample ID                                    | 22/06462/1 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/14 | Units | Limit of Detection | Method ref |
|--------------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|-------|--------------------|------------|
| Client Sample No                                 | 1          | 1          | 1          | 1          | 2          | 1           | 1           |       |                    |            |
| Client Sample ID                                 | TP1        | TP2a       | TP2a       | WS1        | WS1        | WS4         | WS5         |       |                    |            |
| Depth to Top                                     | 0.20       | 0.20       | 0.30       | 0.30       | 1.20       | 0.20        | 0.20        |       |                    |            |
| Depth To Bottom                                  | 0.30       | 0.30       | 0.40       | 0.40       | 1.30       | 0.30        | 0.30        |       |                    |            |
| Date Sampled                                     | 23-Jun-22  | 23-Jun-22  | 23-Jun-22  | 24-Jun-22  | 24-Jun-22  | 24-Jun-22   | 24-Jun-22   |       |                    |            |
| Sample Type                                      | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES   | Soil - ES   |       |                    |            |
| Sample Matrix Code                               | 4AE        | 4AE        | 5AE        | 4AE        | 4AE        | 4AE         | 4AE         |       |                    |            |
| PAH-16MS                                         |            |            |            |            |            |             |             |       |                    |            |
| Acenaphthene <sub>A</sub> <sup>M#</sup>          | <0.01      | <0.01      | -          | 0.11       | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-019s   |
| Acenaphthylene <sub>A</sub> <sup>M#</sup>        | 0.02       | <0.01      | -          | 0.03       | <0.01      | 0.02        | -           | mg/kg | 0.01               | A-T-019s   |
| Anthracene <sub>A</sub> <sup>M#</sup>            | 0.03       | <0.02      | -          | 1.19       | <0.02      | 0.03        | -           | mg/kg | 0.02               | A-T-019s   |
| Benzo(a)anthracene <sub>A</sub> <sup>M#</sup>    | 0.14       | <0.04      | -          | 1.69       | <0.04      | 0.19        | -           | mg/kg | 0.04               | A-T-019s   |
| Benzo(a)pyrene <sub>A</sub> <sup>M#</sup>        | 0.15       | <0.04      | -          | 1.06       | <0.04      | 0.24        | -           | mg/kg | 0.04               | A-T-019s   |
| Benzo(b)fluoranthene <sub>A</sub> <sup>M#</sup>  | 0.21       | <0.05      | -          | 1.66       | <0.05      | 0.32        | -           | mg/kg | 0.05               | A-T-019s   |
| Benzo(ghi)perylene <sub>A</sub> <sup>M#</sup>    | 0.10       | <0.05      | -          | 0.50       | <0.05      | 0.16        | -           | mg/kg | 0.05               | A-T-019s   |
| Benzo(k)fluoranthene <sub>A</sub> <sup>M#</sup>  | 0.09       | <0.07      | -          | 0.63       | <0.07      | 0.12        | -           | mg/kg | 0.07               | A-T-019s   |
| Chrysene <sub>A</sub> <sup>M#</sup>              | 0.16       | <0.06      | -          | 1.61       | <0.06      | 0.24        | -           | mg/kg | 0.06               | A-T-019s   |
| Dibenzo(ah)anthracene <sub>A</sub> <sup>M#</sup> | <0.04      | <0.04      | -          | <0.04      | <0.04      | <0.04       | -           | mg/kg | 0.04               | A-T-019s   |
| Fluoranthene <sub>A</sub> <sup>M#</sup>          | 0.27       | <0.08      | -          | 5.07       | <0.08      | 0.34        | -           | mg/kg | 0.08               | A-T-019s   |
| Fluorene <sub>A</sub> <sup>M#</sup>              | <0.01      | <0.01      | -          | 0.11       | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-019s   |
| Indeno(123-cd)pyrene <sub>A</sub> <sup>M#</sup>  | 0.11       | <0.03      | -          | 0.66       | <0.03      | 0.17        | -           | mg/kg | 0.03               | A-T-019s   |
| Naphthalene <sub>A</sub> <sup>M#</sup>           | <0.03      | <0.03      | -          | <0.03      | <0.03      | <0.03       | -           | mg/kg | 0.03               | A-T-019s   |
| Phenanthrene <sub>A</sub> <sup>M#</sup>          | 0.12       | <0.03      | -          | 3.61       | <0.03      | 0.10        | -           | mg/kg | 0.03               | A-T-019s   |
| Pyrene <sub>A</sub> <sup>M#</sup>                | 0.24       | <0.07      | -          | 3.48       | <0.07      | 0.31        | -           | mg/kg | 0.07               | A-T-019s   |
| Total PAH-16MS <sub>A</sub> <sup>M#</sup>        | 1.64       | <0.08      | -          | 21.4       | <0.08      | 2.24        | -           | mg/kg | 0.01               | A-T-019s   |

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|------------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|-------|--------------------|------------|
| Client Sample No                               | 1          | 1          | 1          | 1          | 2          | 1           | 1           |       |                    |            |
| Client Sample ID                               | TP1        | TP2a       | TP2a       | WS1        | WS1        | WS4         | WS5         |       |                    |            |
| Depth to Top                                   | 0.20       | 0.20       | 0.30       | 0.30       | 1.20       | 0.20        | 0.20        |       |                    |            |
| Depth To Bottom                                | 0.30       | 0.30       | 0.40       | 0.40       | 1.30       | 0.30        | 0.30        |       |                    |            |
| Date Sampled                                   | 23-Jun-22  | 23-Jun-22  | 23-Jun-22  | 24-Jun-22  | 24-Jun-22  | 24-Jun-22   | 24-Jun-22   |       |                    |            |
| Sample Type                                    | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES  | Soil - ES   | Soil - ES   |       |                    |            |
| Sample Matrix Code                             | 4AE        | 4AE        | 5AE        | 4AE        | 4AE        | 4AE         | 4AE         |       |                    |            |
| TPH CWG with Clean Up                          |            |            |            |            |            |             |             |       |                    |            |
| Ali >C5-C6 <sub>A</sub> <sup>#</sup>           | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| Ali >C6-C8 <sub>A</sub> <sup>#</sup>           | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| Ali >C8-C10 <sub>A</sub>                       | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-055s   |
| Ali >C10-C12 <sub>A</sub> <sup>M#</sup>        | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-055s   |
| Ali >C12-C16 <sub>A</sub> <sup>M#</sup>        | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-055s   |
| Ali >C16-C21 <sub>A</sub> <sup>M#</sup>        | <1         | <1         | -          | <1         | <1         | 3           | -           | mg/kg | 1                  | A-T-055s   |
| Ali >C21-C35 <sub>A</sub> <sup>M#</sup>        | 5          | 6          | -          | 11         | <1         | 11          | -           | mg/kg | 1                  | A-T-055s   |
| Total Aliphatics <sub>A</sub>                  | 5          | 6          | -          | 11         | <1         | 14          | -           | mg/kg | 1                  | A-T-055s   |
| Aro >C5-C7 <sub>A</sub> <sup>#</sup>           | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| Aro >C7-C8 <sub>A</sub> <sup>#</sup>           | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| Aro >C8-C10 <sub>A</sub>                       | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-055s   |
| Aro >C10-C12 <sub>A</sub>                      | <1         | <1         | -          | <1         | <1         | <1          | -           | mg/kg | 1                  | A-T-055s   |
| Aro >C12-C16 <sub>A</sub>                      | 1          | 1          | -          | <1         | <1         | 1           | -           | mg/kg | 1                  | A-T-055s   |
| Aro >C16-C21 <sub>A</sub> <sup>M#</sup>        | 2          | <1         | -          | 3          | <1         | 8           | -           | mg/kg | 1                  | A-T-055s   |
| Aro >C21-C35 <sub>A</sub> <sup>M#</sup>        | 8          | 2          | -          | 11         | <1         | 11          | -           | mg/kg | 1                  | A-T-055s   |
| Total Aromatics <sub>A</sub>                   | 11         | 3          | -          | 13         | <1         | 19          | -           | mg/kg | 1                  | A-T-055s   |
| TPH (Ali & Aro >C5-C35) <sub>A</sub>           | 16         | 10         | -          | 24         | <1         | 33          | -           | mg/kg | 1                  | A-T-055s   |
| BTEX - Benzene <sub>A</sub> <sup>#</sup>       | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| BTEX - Toluene <sub>A</sub> <sup>#</sup>       | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| BTEX - Ethyl Benzene <sub>A</sub> <sup>#</sup> | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| BTEX - m & p Xylene <sub>A</sub> <sup>#</sup>  | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| BTEX - o Xylene <sub>A</sub> <sup>#</sup>      | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |
| MTBE <sub>A</sub> <sup>#</sup>                 | <0.01      | <0.01      | -          | <0.01      | <0.01      | <0.01       | -           | mg/kg | 0.01               | A-T-022s   |

Envirolab Job Number: 22/06462

Client Project Name: Bunting Gardens, Waterloooville

Client Project Ref: 305258

| Lab Sample ID                                       | 22/06462/15 | 22/06462/16                   |  |  |  |  |  | Units | Limit of Detection | Method ref |
|-----------------------------------------------------|-------------|-------------------------------|--|--|--|--|--|-------|--------------------|------------|
| Client Sample No                                    | 2           | 2                             |  |  |  |  |  |       |                    |            |
| Client Sample ID                                    | WS5         | TP2                           |  |  |  |  |  |       |                    |            |
| Depth to Top                                        | 0.60        | 0.30                          |  |  |  |  |  |       |                    |            |
| Depth To Bottom                                     |             | 0.40                          |  |  |  |  |  |       |                    |            |
| Date Sampled                                        | 24-Jun-22   | 23-Jun-22                     |  |  |  |  |  |       |                    |            |
| Sample Type                                         | Soil - ES   | Solid -<br>Fragment /<br>Tile |  |  |  |  |  |       |                    |            |
| Sample Matrix Code                                  | 5A          | 8                             |  |  |  |  |  |       |                    |            |
| % Stones >10mm <sub>A</sub>                         | <0.1        | -                             |  |  |  |  |  | % w/w | 0.1                | A-T-044    |
| pH <sub>D</sub> <sup>M#</sup>                       | 8.11        | -                             |  |  |  |  |  | pH    | 0.01               | A-T-031s   |
| Sulphate (water sol 2:1) <sub>D</sub> <sup>M#</sup> | <0.01       | -                             |  |  |  |  |  | g/l   | 0.01               | A-T-026s   |
| Sulphate (acid soluble) <sub>D</sub> <sup>M#</sup>  | 220         | -                             |  |  |  |  |  | mg/kg | 200                | A-T-028s   |
| Arsenic <sub>D</sub> <sup>M#</sup>                  | 5           | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Cadmium <sub>D</sub> <sup>M#</sup>                  | 1.4         | -                             |  |  |  |  |  | mg/kg | 0.5                | A-T-024s   |
| Copper <sub>D</sub> <sup>M#</sup>                   | 13          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Chromium <sub>D</sub> <sup>M#</sup>                 | 27          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Chromium (hexavalent) <sub>D</sub>                  | <1          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-040s   |
| Lead <sub>D</sub> <sup>M#</sup>                     | 33          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Mercury <sub>D</sub>                                | <0.17       | -                             |  |  |  |  |  | mg/kg | 0.17               | A-T-024s   |
| Nickel <sub>D</sub> <sup>M#</sup>                   | 15          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Selenium <sub>D</sub> <sup>M#</sup>                 | <1          | -                             |  |  |  |  |  | mg/kg | 1                  | A-T-024s   |
| Zinc <sub>D</sub> <sup>M#</sup>                     | 44          | -                             |  |  |  |  |  | mg/kg | 5                  | A-T-024s   |

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|                                                                                 |             |                               |  |  |  |  |  |       |       |         |
|---------------------------------------------------------------------------------|-------------|-------------------------------|--|--|--|--|--|-------|-------|---------|
| Lab Sample ID                                                                   | 22/06462/15 | 22/06462/16                   |  |  |  |  |  |       |       |         |
| Client Sample No                                                                | 2           | 2                             |  |  |  |  |  |       |       |         |
| Client Sample ID                                                                | WS5         | TP2                           |  |  |  |  |  |       |       |         |
| Depth to Top                                                                    | 0.60        | 0.30                          |  |  |  |  |  |       |       |         |
| Depth To Bottom                                                                 |             | 0.40                          |  |  |  |  |  |       |       |         |
| Date Sampled                                                                    | 24-Jun-22   | 23-Jun-22                     |  |  |  |  |  |       |       |         |
| Sample Type                                                                     | Soil - ES   | Solid -<br>Fragment /<br>Tile |  |  |  |  |  |       |       |         |
| Sample Matrix Code                                                              | 5A          | 8                             |  |  |  |  |  |       |       |         |
| Bulk Fibre ID (inc. matrix)                                                     |             |                               |  |  |  |  |  |       |       |         |
| Bulk Fibre Identification <sub>D</sub> <sup>#</sup>                             | -           | Amosite &<br>Chrysotile       |  |  |  |  |  |       |       | A-T-045 |
| Bulk Fibre Identification Matrix (visual) <sub>D</sub>                          | -           | Board &<br>Cement             |  |  |  |  |  |       |       | A-T-045 |
| Bulk Fibre Identification - Suitable for<br>Water Absorption Test? <sub>D</sub> | -           | Yes                           |  |  |  |  |  |       |       | A-T-045 |
|                                                                                 |             |                               |  |  |  |  |  |       |       |         |
| Bulk Fibre Quantification %<br>Asbestos in ACM                                  |             |                               |  |  |  |  |  |       |       |         |
| Bulk Fibre - % Asbestos in ACM (HSG264) <sub>D</sub>                            | -           | 18.249                        |  |  |  |  |  | % w/w | 0.001 | A-T-054 |

Envirolab Job Number: 22/06462

Client Project Name: Bunting Gardens, Waterloooville

Client Project Ref: 305258

|                                                  |             |                               |  |  |  |  |  |       |                    |            |
|--------------------------------------------------|-------------|-------------------------------|--|--|--|--|--|-------|--------------------|------------|
| Lab Sample ID                                    | 22/06462/15 | 22/06462/16                   |  |  |  |  |  | Units | Limit of Detection | Method ref |
| Client Sample No                                 | 2           | 2                             |  |  |  |  |  |       |                    |            |
| Client Sample ID                                 | WS5         | TP2                           |  |  |  |  |  |       |                    |            |
| Depth to Top                                     | 0.60        | 0.30                          |  |  |  |  |  |       |                    |            |
| Depth To Bottom                                  |             | 0.40                          |  |  |  |  |  |       |                    |            |
| Date Sampled                                     | 24-Jun-22   | 23-Jun-22                     |  |  |  |  |  |       |                    |            |
| Sample Type                                      | Soil - ES   | Solid -<br>Fragment /<br>Tile |  |  |  |  |  |       |                    |            |
| Sample Matrix Code                               | 5A          | 8                             |  |  |  |  |  |       |                    |            |
| PAH-16MS                                         |             |                               |  |  |  |  |  |       |                    |            |
| Acenaphthene <sub>A</sub> <sup>M#</sup>          | <0.01       | -                             |  |  |  |  |  | mg/kg | 0.01               | A-T-019s   |
| Acenaphthylene <sub>A</sub> <sup>M#</sup>        | <0.01       | -                             |  |  |  |  |  | mg/kg | 0.01               | A-T-019s   |
| Anthracene <sub>A</sub> <sup>M#</sup>            | <0.02       | -                             |  |  |  |  |  | mg/kg | 0.02               | A-T-019s   |
| Benzo(a)anthracene <sub>A</sub> <sup>M#</sup>    | <0.04       | -                             |  |  |  |  |  | mg/kg | 0.04               | A-T-019s   |
| Benzo(a)pyrene <sub>A</sub> <sup>M#</sup>        | <0.04       | -                             |  |  |  |  |  | mg/kg | 0.04               | A-T-019s   |
| Benzo(b)fluoranthene <sub>A</sub> <sup>M#</sup>  | <0.05       | -                             |  |  |  |  |  | mg/kg | 0.05               | A-T-019s   |
| Benzo(ghi)perylene <sub>A</sub> <sup>M#</sup>    | <0.05       | -                             |  |  |  |  |  | mg/kg | 0.05               | A-T-019s   |
| Benzo(k)fluoranthene <sub>A</sub> <sup>M#</sup>  | <0.07       | -                             |  |  |  |  |  | mg/kg | 0.07               | A-T-019s   |
| Chrysene <sub>A</sub> <sup>M#</sup>              | <0.06       | -                             |  |  |  |  |  | mg/kg | 0.06               | A-T-019s   |
| Dibenzo(ah)anthracene <sub>A</sub> <sup>M#</sup> | <0.04       | -                             |  |  |  |  |  | mg/kg | 0.04               | A-T-019s   |
| Fluoranthene <sub>A</sub> <sup>M#</sup>          | <0.08       | -                             |  |  |  |  |  | mg/kg | 0.08               | A-T-019s   |
| Fluorene <sub>A</sub> <sup>M#</sup>              | <0.01       | -                             |  |  |  |  |  | mg/kg | 0.01               | A-T-019s   |
| Indeno(123-cd)pyrene <sub>A</sub> <sup>M#</sup>  | <0.03       | -                             |  |  |  |  |  | mg/kg | 0.03               | A-T-019s   |
| Naphthalene <sub>A</sub> <sup>M#</sup>           | <0.03       | -                             |  |  |  |  |  | mg/kg | 0.03               | A-T-019s   |
| Phenanthrene <sub>A</sub> <sup>M#</sup>          | <0.03       | -                             |  |  |  |  |  | mg/kg | 0.03               | A-T-019s   |
| Pyrene <sub>A</sub> <sup>M#</sup>                | <0.07       | -                             |  |  |  |  |  | mg/kg | 0.07               | A-T-019s   |
| Total PAH-16MS <sub>A</sub> <sup>M#</sup>        | <0.08       | -                             |  |  |  |  |  | mg/kg | 0.01               | A-T-019s   |

Envirolab Job Number: 22/06462

Client Project Name: Bunting Gardens, Waterloooville

Client Project Ref: 305258

| Lab Sample ID                                  | 22/06462/15 | 22/06462/16             |  |  |  |  |  | Units | Limit of Detection | Method ref |
|------------------------------------------------|-------------|-------------------------|--|--|--|--|--|-------|--------------------|------------|
| Client Sample No                               | 2           | 2                       |  |  |  |  |  |       |                    |            |
| Client Sample ID                               | WS5         | TP2                     |  |  |  |  |  |       |                    |            |
| Depth to Top                                   | 0.60        | 0.30                    |  |  |  |  |  |       |                    |            |
| Depth To Bottom                                |             | 0.40                    |  |  |  |  |  |       |                    |            |
| Date Sampled                                   | 24-Jun-22   | 23-Jun-22               |  |  |  |  |  |       |                    |            |
| Sample Type                                    | Soil - ES   | Solid - Fragment / Tile |  |  |  |  |  |       |                    |            |
| Sample Matrix Code                             | 5A          | 8                       |  |  |  |  |  |       |                    |            |
| TPH CWG with Clean Up                          |             |                         |  |  |  |  |  |       |                    |            |
| Ali >C5-C6 <sub>A</sub> <sup>#</sup>           | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| Ali >C6-C8 <sub>A</sub> <sup>#</sup>           | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| Ali >C8-C10 <sub>A</sub>                       | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Ali >C10-C12 <sub>A</sub> <sup>M#</sup>        | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Ali >C12-C16 <sub>A</sub> <sup>M#</sup>        | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Ali >C16-C21 <sub>A</sub> <sup>M#</sup>        | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Ali >C21-C35 <sub>A</sub> <sup>M#</sup>        | 1           | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Total Aliphatics <sub>A</sub>                  | 1           | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Aro >C5-C7 <sub>A</sub> <sup>#</sup>           | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| Aro >C7-C8 <sub>A</sub> <sup>#</sup>           | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| Aro >C8-C10 <sub>A</sub>                       | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Aro >C10-C12 <sub>A</sub>                      | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Aro >C12-C16 <sub>A</sub>                      | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Aro >C16-C21 <sub>A</sub> <sup>M#</sup>        | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Aro >C21-C35 <sub>A</sub> <sup>M#</sup>        | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| Total Aromatics <sub>A</sub>                   | <1          | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| TPH (Ali & Aro >C5-C35) <sub>A</sub>           | 1           | -                       |  |  |  |  |  | mg/kg | 1                  | A-T-055s   |
| BTEX - Benzene <sub>A</sub> <sup>#</sup>       | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| BTEX - Toluene <sub>A</sub> <sup>#</sup>       | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| BTEX - Ethyl Benzene <sub>A</sub> <sup>#</sup> | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| BTEX - m & p Xylene <sub>A</sub> <sup>#</sup>  | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| BTEX - o Xylene <sub>A</sub> <sup>#</sup>      | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |
| MTBE <sub>A</sub> <sup>#</sup>                 | <0.01       | -                       |  |  |  |  |  | mg/kg | 0.01               | A-T-022s   |

## **REPORT NOTES**

### **General**

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

### **Soil chemical analysis:**

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

### **TPH analysis of water by method A-T-007:**

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

### **Electrical Conductivity of water by Method A-T-037:**

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

### **Asbestos:**

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

### **Predominant Matrix Codes:**

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH. Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

### **Secondary Matrix Codes:**

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

### **Key:**

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

### **EPH CWG GCxGC ID from TPH CWG**

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

## Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR  
Tel. 0161 368 4921 email. ask@envlab.co.uk

**Client:** RSK Environment Ltd Romsey, Unit 18 Basepoint Abbey Enterprise Centre,  
Premier Way, Romsey, Hampshire, SO51 9AQ

**Project:** Bunting Gardens, Waterloooville

**Clients Project No:** 305258

**Project No:** 22/06462

**Date Received:** 01/07/2022 (am)

**Cool Box Temperatures (°C):** 16.5 & 16.8

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples  $5 \pm 3^{\circ}\text{C}$ ), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

## Envirolab Analysis Dates

| Lab Sample ID          | 22/06462/1     | 22/06462/3      | 22/06462/4      | 22/06462/6     | 22/06462/7     | 22/06462/11    | 22/06462/14    | 22/06462/15 | 22/06462/16    |
|------------------------|----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|-------------|----------------|
| Client Sample No       | 1              | 1               | 1               | 1              | 2              | 1              | 1              | 2           | 2              |
| Client Sample ID/Depth | TP1 0.20-0.30m | TP2a 0.20-0.30m | TP2a 0.30-0.40m | WS1 0.30-0.40m | WS1 1.20-1.30m | WS4 0.20-0.30m | WS5 0.20-0.30m | WS5 0.60m   | TP2 0.30-0.40m |
| Date Sampled           | 23/06/22       | 23/06/22        | 23/06/22        | 24/06/22       | 24/06/22       | 24/06/22       | 24/06/22       | 24/06/22    | 23/06/22       |
| A-T-019s               | 08/07/2022     | 08/07/2022      |                 | 08/07/2022     | 08/07/2022     | 08/07/2022     |                | 08/07/2022  |                |
| A-T-022s               | 07/07/2022     | 07/07/2022      |                 | 07/07/2022     | 07/07/2022     | 07/07/2022     |                | 07/07/2022  |                |
| A-T-024s               | 08/07/2022     | 08/07/2022      |                 | 08/07/2022     | 08/07/2022     | 08/07/2022     |                | 08/07/2022  |                |
| A-T-026s               | 07/07/2022     | 07/07/2022      |                 | 07/07/2022     | 07/07/2022     | 07/07/2022     |                | 07/07/2022  |                |
| A-T-028s               | 08/07/2022     | 08/07/2022      |                 | 08/07/2022     | 08/07/2022     | 08/07/2022     |                | 08/07/2022  |                |
| A-T-031s               | 07/07/2022     | 07/07/2022      |                 | 07/07/2022     | 07/07/2022     | 07/07/2022     |                | 07/07/2022  |                |
| A-T-032s               |                |                 | 11/07/2022      | 11/07/2022     |                |                |                |             |                |
| A-T-040s               | 07/07/2022     | 07/07/2022      |                 | 07/07/2022     | 07/07/2022     | 07/07/2022     |                | 07/07/2022  |                |
| A-T-044                | 12/07/2022     | 12/07/2022      | 12/07/2022      | 12/07/2022     | 12/07/2022     | 12/07/2022     |                | 12/07/2022  |                |
| A-T-045                |                | 05/07/2022      |                 | 05/07/2022     |                |                | 05/07/2022     |             | 04/07/2022     |
| A-T-054                |                |                 |                 |                |                |                |                |             | 18/07/2022     |
| A-T-055s               | 07/07/2022     | 07/07/2022      |                 | 07/07/2022     | 07/07/2022     | 07/07/2022     |                | 07/07/2022  |                |

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

**End of Report**

## **APPENDIX H**

### **LABORATORY CERTIFICATES FOR GEOTECHNICAL ANALYSIS**

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## SUMMARY OF GEOTECHNICAL TESTING

| Sample details |           |            |      |                                                                             | Classification Tests |    |    |    |         | Density Tests |       | Undrained Triaxial Compression |               |                 |              | Chemical Tests |             |        | Other tests and comments |
|----------------|-----------|------------|------|-----------------------------------------------------------------------------|----------------------|----|----|----|---------|---------------|-------|--------------------------------|---------------|-----------------|--------------|----------------|-------------|--------|--------------------------|
| Location       | Depth (m) | Sample Ref | Type | Description                                                                 | WC                   | LL | PL | PI | <425 µm | Bulk          | Dry   | Condition                      | Cell Pressure | Deviator Stress | Shear Stress | pH             | 2:1 W/S SO4 | W/S Mg |                          |
|                |           |            |      |                                                                             | %                    | %  | %  | %  | %       | Mg/m³         | Mg/m³ |                                | kPa           | kPa             | kPa          |                | g/L         | mg/L   |                          |
| TP01           | 0.25-0.45 | 1          | B    | Brown sandy gravelly CLAY with rare rootlets.                               | 8.6                  |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| TP01           | 0.55-0.65 | 2          | B    | Brown sandy gravelly CLAY. Sand is fine.                                    | 14.0                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| TP01           | 1.20-1.30 | 3          | B    | Dark brown slightly sandy slightly gravelly CLAY.                           | 18.3                 | 35 | 17 | 18 | 75      |               |       |                                |               |                 |              |                |             |        |                          |
| TP01           | 2.30-2.40 | 4          | B    | Dark brown slightly sandy slightly gravelly CLAY.                           | 20.0                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 0.60-0.80 | 1          | B    | Brown and orangish brown slightly gravelly sandy CLAY.                      | 18.8                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 1.00-1.10 | 2          | D    | Brown slightly sandy slightly gravelly CLAY.                                | 20.3                 | 56 | 19 | 37 | 98      |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 1.40-1.50 | 4          | B    | Orangish brown and light grey slightly sandy CLAY.                          | 24.6                 | 66 | 22 | 44 | 100     |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 1.80-1.90 | 6          | B    | Orangish brown slightly sandy gravelly CLAY.                                | 14.0                 | 43 | 16 | 27 | 41      |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 2.20-2.30 | 8          | D    | Brown and grey slightly sandy CLAY.                                         | 24.9                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| TP02a          | 2.60      | 10         | D    | Greyish brown mottled orangish brown slightly sandy slightly gravelly CLAY. | 20.5                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                          |                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Checked and Approved by<br><br><br><br>S Burke - Senior Technician<br>27/07/2022 | <div style="display: flex; justify-content: space-between;"> <div>           Project Number:<br/><br/>           Project Name:         </div> <div style="text-align: center;"> <b>GEO / 35864</b><br/><br/> <b>BUNTING GARDENS, WATERLOOVILLE</b><br/><br/> <b>305258</b> </div> </div> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|

## SUMMARY OF GEOTECHNICAL TESTING

| Sample details |           |            |      |                                                                 | Classification Tests |    |    |    |         | Density Tests |       | Undrained Triaxial Compression |               |                 |              | Chemical Tests |             |        | Other tests and comments |
|----------------|-----------|------------|------|-----------------------------------------------------------------|----------------------|----|----|----|---------|---------------|-------|--------------------------------|---------------|-----------------|--------------|----------------|-------------|--------|--------------------------|
| Location       | Depth (m) | Sample Ref | Type | Description                                                     | WC                   | LL | PL | PI | <425 µm | Bulk          | Dry   | Condition                      | Cell Pressure | Deviator Stress | Shear Stress | pH             | 2:1 W/S SO4 | W/S Mg |                          |
|                |           |            |      |                                                                 | %                    | %  | %  | %  | %       | Mg/m³         | Mg/m³ |                                | kPa           | kPa             | kPa          |                | g/L         | mg/L   |                          |
| WS1            | 1.20-1.30 | 1          | D    | Orangish brown slightly sandy gravelly CLAY.                    | 13.1                 | 33 | 16 | 17 | 49      |               |       |                                |               |                 |              |                |             |        | Chemical                 |
| WS1            | 1.70-1.80 | 2          | D    | Brown slightly sandy gravelly CLAY.                             | 18.0                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 2.50-2.60 | 4          | D    | Brown slightly sandy gravelly CLAY.                             | 14.6                 | 37 | 15 | 22 | 45      |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 3.00-3.10 | 5          | D    | Orangish brown slightly sandy gravelly CLAY.                    | 16.6                 | 39 | 16 | 23 | 48      |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 3.20-3.40 | 1          | B    | Orangish brown and brown slightly gravelly slightly sandy CLAY. | 22.6                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 4.00-4.10 | 7          | D    | Brown and orangish brown slightly sandy CLAY.                   | 23.4                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 4.30-4.40 | 8          | D    | Orangish brown and mottled brown slightly sandy gravelly CLAY.  | 23.3                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 4.60-4.70 | 9          | D    | Orangish brown and brown slightly gravelly slightly sandy CLAY. | 18.5                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS1            | 4.90-5.10 | 10         | D    | Brown mottled orangish brown slightly sandy gravelly CLAY.      | 16.1                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                          |
| WS2            | 1.50-1.60 |            | D    | Brown sandy gravelly CLAY.                                      | 14.8                 | 52 | 20 | 32 | 32      |               |       |                                |               |                 |              |                |             |        | Chemical                 |

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                     |                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Checked and Approved by<br><br><br><br>S Burke - Senior Technician<br>27/07/2022 | <div style="display: flex; justify-content: space-between;"> <div>           Project Number:<br/><br/>           Project Name:         </div> <div style="text-align: center;"> <b>GEO / 35864</b><br/><br/> <b>BUNTING GARDENS, WATERLOOVILLE</b><br/> <b>305258</b> </div> </div> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|

## SUMMARY OF GEOTECHNICAL TESTING

| Sample details |           |            |      |                                                                                                  | Classification Tests |    |    |    |         | Density Tests |       | Undrained Triaxial Compression |               |                 |              | Chemical Tests |             |        | Other tests and comments   |
|----------------|-----------|------------|------|--------------------------------------------------------------------------------------------------|----------------------|----|----|----|---------|---------------|-------|--------------------------------|---------------|-----------------|--------------|----------------|-------------|--------|----------------------------|
| Location       | Depth (m) | Sample Ref | Type | Description                                                                                      | WC                   | LL | PL | PI | <425 µm | Bulk          | Dry   | Condition                      | Cell Pressure | Deviator Stress | Shear Stress | pH             | 2:1 W/S SO4 | W/S Mg |                            |
|                |           |            |      |                                                                                                  | %                    | %  | %  | %  | %       | Mg/m³         | Mg/m³ |                                | kPa           | kPa             | kPa          |                | g/L         | mg/L   |                            |
| WS2            | 1.60-1.70 | 1          | D    | Brown mottled black slightly sandy gravelly CLAY.                                                | 19.5                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |
| WS2            | 2.00-2.10 | 2          | D    | Brown and orangish brown slightly gravelly sandy CLAY. Sand is fine.                             | 16.0                 | 36 | 13 | 23 | 99      |               |       |                                |               |                 |              |                |             |        | Chemical                   |
| WS2            | 2.20-2.30 | 3          | D    | Brown and orangish brown slightly gravelly sandy CLAY. Sand is fine.                             | 18.9                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |
| WS2            | 2.70-2.80 | 4          | D    | Yellowish brown mottled brownish grey slightly gravelly sandy silty CLAY. Gravel is fine.        |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        | Particle Size Distribution |
| WS2            | 3.50-3.60 | 1          | B    | Light brown and orangish brown sandy CLAY. Sand is fine to medium.                               | 15.1                 | 35 | 16 | 19 | 92      |               |       |                                |               |                 |              |                |             |        |                            |
| WS2            | 3.50-3.60 | 6          | D    | Orangish brown and greyish brown slightly sandy gravelly CLAY.                                   | 15.9                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |
| WS2            | 4.00-4.10 | 7          | D    | Brown and orangish brown mottled reddish brown slightly gravelly slightly sandy CLAY.            | 18.9                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |
| WS2            | 4.30-4.50 | 2          | B    | Light orangish brown and light grey mottled reddish brown slightly sandy slightly gravelly CLAY. | 17.2                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |
| WS4            | 0.70-0.80 | 1          | B    | Greyish brown slightly sandy clayey gravelly SILT.                                               |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        | Particle Size Distribution |
| WS4            | 1.50-1.60 |            | D    | Brown and orangish brown slightly sandy gravelly CLAY.                                           | 22.4                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                            |

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                     |                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Checked and Approved by<br><br><br><br>S Burke - Senior Technician<br>27/07/2022 | <div style="display: flex; justify-content: space-between;"> <div>           Project Number:<br/><br/>           Project Name:         </div> <div style="text-align: center;"> <b>GEO / 35864</b><br/><br/> <b>BUNTING GARDENS, WATERLOOVILLE</b><br/> <b>305258</b> </div> </div> |  |
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## SUMMARY OF GEOTECHNICAL TESTING

| Sample details |           |            |      |                                                                                                     | Classification Tests |    |    |    |         | Density Tests |       | Undrained Triaxial Compression |               |                 |              | Chemical Tests |             |        | Other tests and comments               |
|----------------|-----------|------------|------|-----------------------------------------------------------------------------------------------------|----------------------|----|----|----|---------|---------------|-------|--------------------------------|---------------|-----------------|--------------|----------------|-------------|--------|----------------------------------------|
| Location       | Depth (m) | Sample Ref | Type | Description                                                                                         | WC                   | LL | PL | PI | <425 µm | Bulk          | Dry   | Condition                      | Cell Pressure | Deviator Stress | Shear Stress | pH             | 2:1 W/S SO4 | W/S Mg |                                        |
|                |           |            |      |                                                                                                     | %                    | %  | %  | %  | %       | Mg/m³         | Mg/m³ |                                | kPa           | kPa             | kPa          |                | g/L         | mg/L   |                                        |
| WS4            | 2.00-2.10 | 1          | D    | Brown and orangish brown mottled dark brown slightly sandy gravelly CLAY.                           | 19.3                 | 37 | 17 | 20 | 70      |               |       |                                |               |                 |              |                |             |        |                                        |
| WS4            | 2.40-2.50 | 2          | D    | Brown and orangish brown slightly sandy gravelly CLAY.                                              | 12.9                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        | Chemical                               |
| WS4            | 2.80-2.90 | 3          | D    | Brown slightly sandy gravelly CLAY.                                                                 | 10.7                 | 45 | 18 | 27 | 35      |               |       |                                |               |                 |              |                |             |        |                                        |
| WS4            | 3.20-3.30 | 4          | D    | Light greyish brown mottled orangish brown and reddish brown slightly sandy slightly gravelly CLAY. | 11.2                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |
| WS4            | 3.60-3.70 | 5          | D    | Multicoloured slightly sandy CLAY.                                                                  | 10.6                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |
| WS4            | 4.00-4.10 | 6          | D    | Light brown mottled orangish brown and reddish brown slightly sandy CLAY.                           | 19.1                 |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |
| WS5            | 0.60-0.70 |            | D    | Brown clayey gravelly sandy SILT with rare rootlets. Gravel is flint.                               |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        | Particle Size Distribution<br>Chemical |
|                |           |            |      |                                                                                                     |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |
|                |           |            |      |                                                                                                     |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |
|                |           |            |      |                                                                                                     |                      |    |    |    |         |               |       |                                |               |                 |              |                |             |        |                                        |

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                          |                                                                                       |
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Tested by Chemtest Ltd : MCERTS / UKAS No 2183

**GEOLABS**

**PARTICLE SIZE DISTRIBUTION**

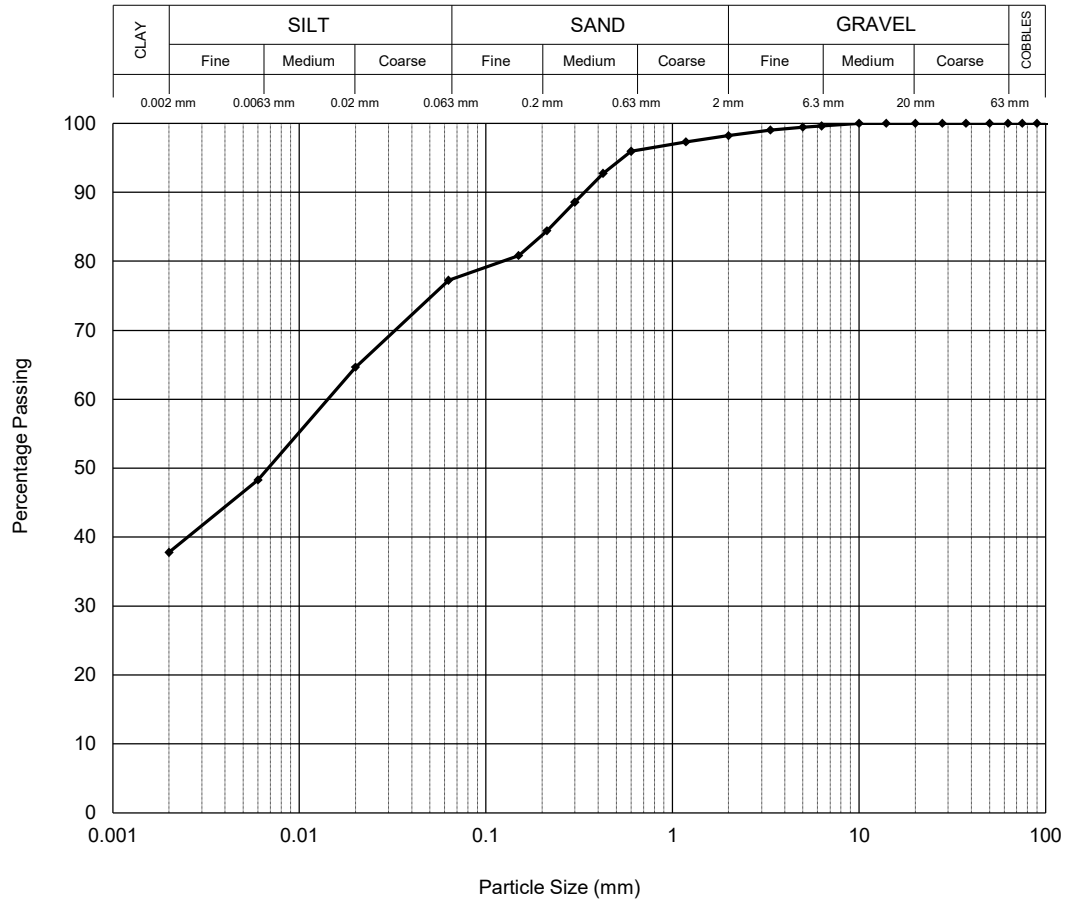
Location WS2  
 Sample Ref 4  
 Depth (m) 2.70-2.80  
 Sample Type D

**Description**

Yellowish brown mottled brownish grey slightly gravelly sandy silty CLAY.  
 Gravel is fine.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve  
 BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

| Sieve    |        |
|----------|--------|
| Size     | % Pass |
| 200.0 mm | 100    |
| 125.0 mm | 100    |
| 90.0 mm  | 100    |
| 75.0 mm  | 100    |
| 63.0 mm  | 100    |
| 50.0 mm  | 100    |
| 37.5 mm  | 100    |
| 28.0 mm  | 100    |
| 20.0 mm  | 100    |
| 14.0 mm  | 100    |
| 10.0 mm  | 100    |
| 6.30 mm  | 100    |
| 5.00 mm  | 99     |
| 3.35 mm  | 99     |
| 2.00 mm  | 98     |
| 1.18 mm  | 97     |
| 600 µm   | 96     |
| 425 µm   | 93     |
| 300 µm   | 89     |
| 212 µm   | 84     |
| 150 µm   | 81     |
| 63 µm    | 77     |



| Sedimentation         |        |
|-----------------------|--------|
| No Pre-treatment used |        |
| Temp (°C)             | 25.0   |
| Size                  | % Pass |
| 20 µm                 | 65     |
| 6 µm                  | 48     |
| 2 µm                  | 38     |

Particle Density 2.70(A) Mg/m<sup>3</sup>

| Particle Proportions |      |
|----------------------|------|
| Cobbles              | 0.0  |
| Gravel               | 1.8  |
| Sand                 | 21.0 |
| Silt                 | 39.5 |
| Clay                 | 37.7 |

Tested by AW  
 Checked and Approved by

*S Burke*

S Burke - Senior Technician  
 27/07/2022

Project Number:

**GEO / 35864**

Project Name:

**BUNTING GARDENS, WATERLOOVILLE**  
**305258**



**PARTICLE SIZE DISTRIBUTION**

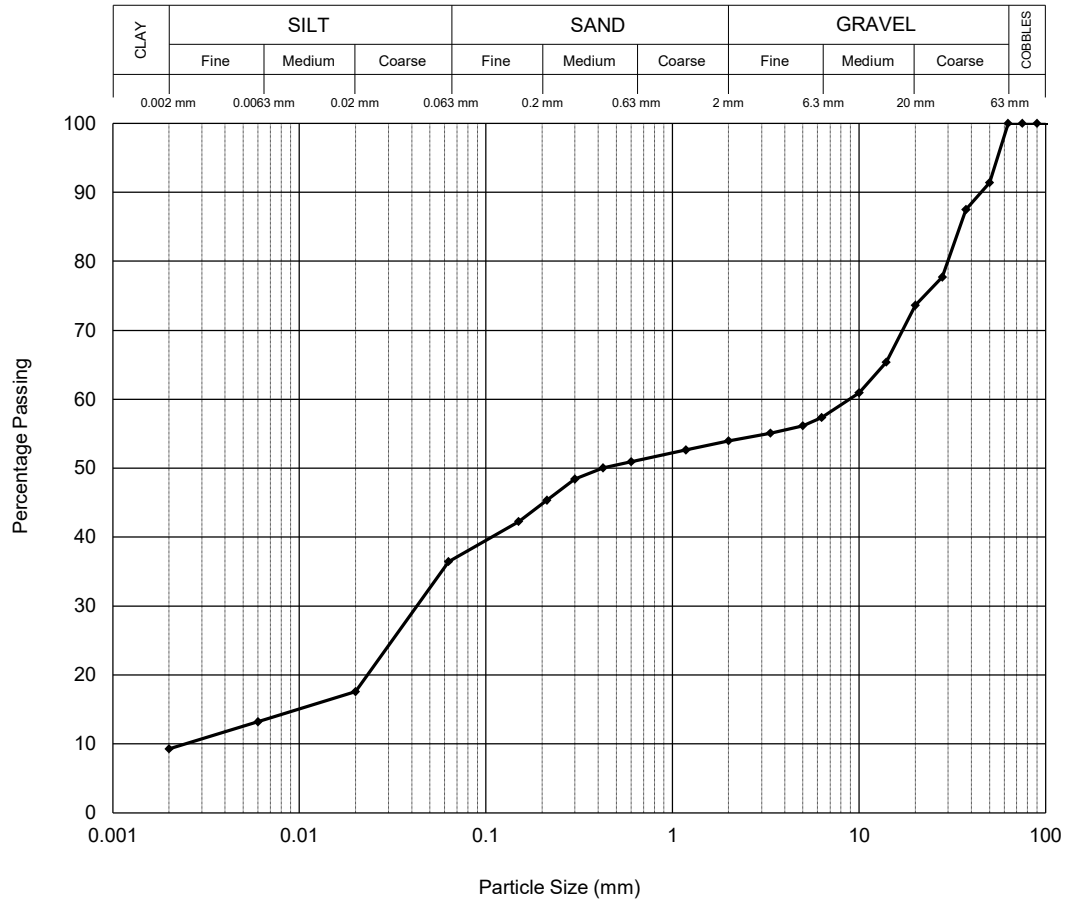
Location WS4  
 Sample Ref 1  
 Depth (m) 0.70-0.80  
 Sample Type B

## Description

Greyish brown slightly sandy clayey gravelly SILT.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve  
 BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

| Sieve    |        |
|----------|--------|
| Size     | % Pass |
| 200.0 mm | 100    |
| 125.0 mm | 100    |
| 90.0 mm  | 100    |
| 75.0 mm  | 100    |
| 63.0 mm  | 100    |
| 50.0 mm  | 91     |
| 37.5 mm  | 88     |
| 28.0 mm  | 78     |
| 20.0 mm  | 74     |
| 14.0 mm  | 65     |
| 10.0 mm  | 61     |
| 6.30 mm  | 57     |
| 5.00 mm  | 56     |
| 3.35 mm  | 55     |
| 2.00 mm  | 54     |
| 1.18 mm  | 53     |
| 600 µm   | 51     |
| 425 µm   | 50     |
| 300 µm   | 48     |
| 212 µm   | 45     |
| 150 µm   | 42     |
| 63 µm    | 36     |



| Sedimentation         |        |
|-----------------------|--------|
| No Pre-treatment used |        |
| Temp (°C)             | 25.0   |
| Size                  | % Pass |
| 20 µm                 | 18     |
| 6 µm                  | 13     |
| 2 µm                  | 9      |

Particle Density 2.70(A) Mg/m<sup>3</sup>

| Particle Proportions |      |
|----------------------|------|
| Cobbles              | 0.0  |
| Gravel               | 46.0 |
| Sand                 | 17.5 |
| Silt                 | 27.1 |
| Clay                 | 9.4  |

Tested by AW  
 Checked and Approved by

*S Burke*

S Burke - Senior Technician  
 27/07/2022

Project Number:

GEO / 35864

Project Name:

**BUNTING GARDENS, WATERLOOVILLE**  
**305258**



**PARTICLE SIZE DISTRIBUTION**

Location WS5  
 Depth (m) 0.60-0.70  
 Sample Type D

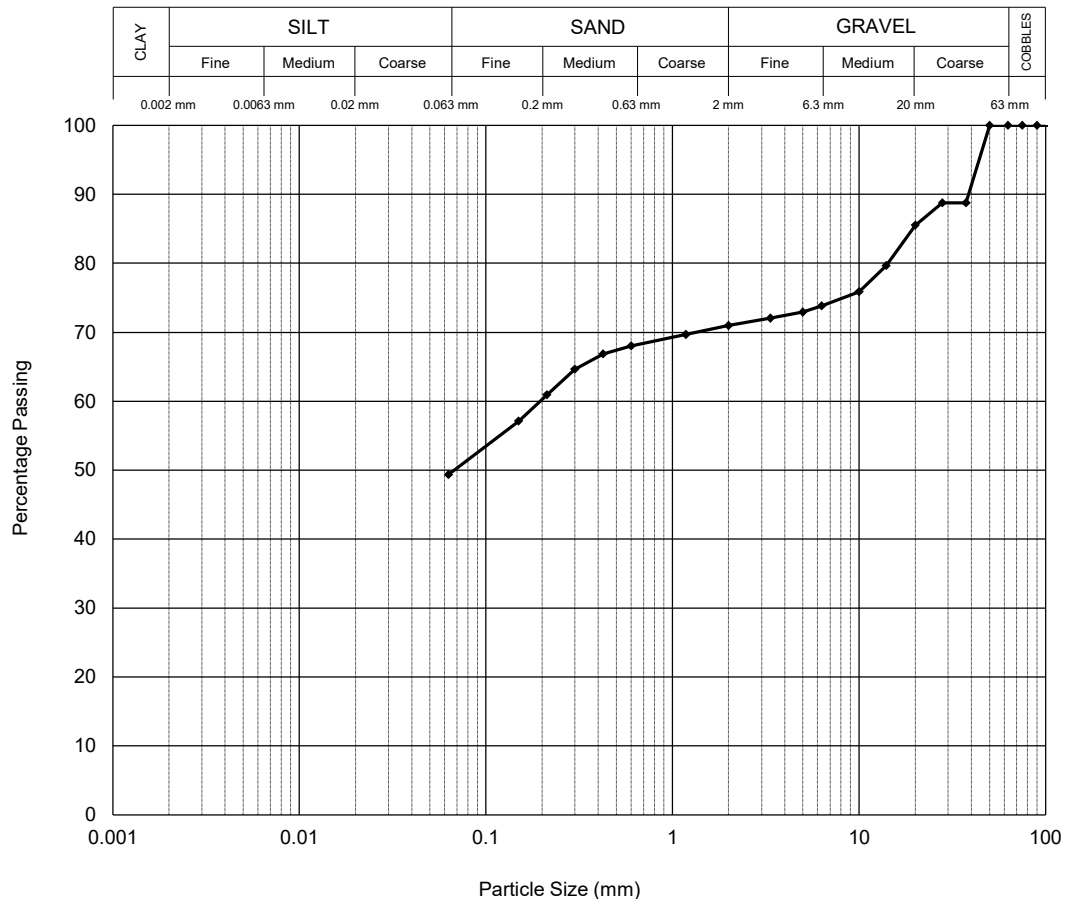
**Description**

Brown clayey gravelly sandy SILT with rare rootlets. Gravel is flint.

**Remarks** Insufficient sample supplied to comply with BS EN ISO 17892-4 : 2016 minimum mass requirements

## BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

| Sieve    |        |
|----------|--------|
| Size     | % Pass |
| 200.0 mm | 100    |
| 125.0 mm | 100    |
| 90.0 mm  | 100    |
| 75.0 mm  | 100    |
| 63.0 mm  | 100    |
| 50.0 mm  | 100    |
| 37.5 mm  | 89     |
| 28.0 mm  | 89     |
| 20.0 mm  | 86     |
| 14.0 mm  | 80     |
| 10.0 mm  | 76     |
| 6.30 mm  | 74     |
| 5.00 mm  | 73     |
| 3.35 mm  | 72     |
| 2.00 mm  | 71     |
| 1.18 mm  | 70     |
| 600 µm   | 68     |
| 425 µm   | 67     |
| 300 µm   | 65     |
| 212 µm   | 61     |
| 150 µm   | 57     |
| 63 µm    | 49     |



| Particle Proportions |      |
|----------------------|------|
| Cobbles              | 0.0  |
| Gravel               | 29.0 |
| Sand                 | 21.6 |
| Silt & Clay          | 49.4 |

Tested by AW  
 Checked and Approved by

*S Burke*

S Burke - Senior Technician  
 27/07/2022

Project Number:

GEO / 35864

Project Name:

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**305258**



## **APPENDIX I**

### **GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH**

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## **Generic assessment criteria for human health: residential scenario with home-grown produce**

### **Background**

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009<sup>(1)</sup>. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009<sup>(2)</sup>. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

### **Updates to the RSK GAC**

In 2014, the publication of Category 4 Screening Levels (C4SL)<sup>(3,4)</sup>, as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)<sup>(5)</sup> used in the generation of SGVs.

C4SL were initially published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010<sup>(3)</sup>). Further C4SL were published in 2021 for vinyl chloride, tetrachloroethene (PCE) and trichloroethene (TCE). Where a C4SL has been published, the RSK GAC duplicates the C4SL using all input parameters within the SP1010 final project report<sup>(3)</sup> and associated chemical specific reports<sup>(6)</sup>, and adopts them as GAC for these substances. Due to the use of decimal places rather than significant figures applied to the Contaminated Land Exposure Assessment (CLEA) tool outputs, the GAC presented may be marginally differently to the C4SL values, however any differences between the values are minimal and would not equate to an unacceptable risk.

For all other substances the C4SL exposure modifications, with the exception of the "top two" produce type approach taken in the C4SL, have been applied to the current RSK GAC. These include alterations to daily inhalation rates for residential and commercial scenarios, reducing soil adherence factors in children (age classes 1 to 12 only) for residential land use, reducing exposure frequency for dermal contact outdoors for residential land use, and updated produce type consumption rates (90<sup>th</sup> percentile) based on recent data from the National Diet and Nutrition Survey.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015<sup>(7)</sup> or by the USEPA<sup>(14)</sup>, where a C4SL has not been published.

### **RSK GAC derivation for metals and organic compounds**

#### *Model selection*

Soil assessment criteria (SAC) were calculated using the CLEA tool v1.071, supporting EA guidance<sup>(5,8,9)</sup> and revised exposure scenarios published for the C4SL<sup>(3)</sup>. The SAC are also termed GAC.

### Conceptual model

In accordance with SR3<sup>(5)</sup>, the residential with home-grown produce scenario considers risks to a female child between the ages of 0 and 6 years old as the highest risk scenario. In accordance with Box 3.1 of SR3<sup>(5)</sup>, the pathways considered for production of the SAC in the residential with home-grown produce scenario are

- direct soil and dust ingestion
- consumption of home-grown produce
- consumption of soil attached to home-grown produce
- dermal contact with soil and indoor dust
- inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium<sup>(1)</sup>, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the  $TDI_{oral}$  and  $TDI_{inh}$ , are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase<sup>(9)</sup>. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached<sup>(9)</sup>. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required<sup>(9)</sup>:

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits
- Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook<sup>(9)</sup>, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook<sup>(9)</sup>, which explains how to calculate an effective assessment criterion manually.

SR3<sup>(5)</sup> states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

### *Input selection*

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7<sup>(10)</sup>, the EA TOX<sup>(1)</sup> reports, the C4SL SP1010 project report and associated appendices<sup>(3,6)</sup>, the 2015 LQM/CIEH report<sup>(7)</sup> or the USEPA IRIS database<sup>(14)</sup>. Where a LLTC<sup>(3,6)</sup> has been published for a substance, RSK has used these input parameters to derive the RSK GAC. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, barium, methyl tertiary-butyl ether (MTBE), 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloropropane, 2-chloronaphthalene, chloroethane, chloromethane, cis 1,2-dichloroethene, dichloromethane, hexachloroethane and trans 1,2-dichloroethene were obtained from the CL:AIRE Soil Generic Assessment Criteria report<sup>(11)</sup>.

For TPH, aromatic hydrocarbons C<sub>5</sub>–C<sub>8</sub> were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

### *Physical parameters*

For the residential with home-grown produce scenario, the CLEA default building is a small, two-storey terrace house with a concrete ground-bearing slab. The house is assumed to have a 100m<sup>2</sup> private garden consisting of lawn and flowerbeds, incorporating a 20m<sup>2</sup> plot for growing fruit and vegetables consumed by the residents. SR3<sup>(5)</sup> notes this residential building type to be the most conservative in terms of potential for vapour intrusion. The building parameters used in the production of the RSK GACs are the default CLEA v1.06 inputs presented in Table 3.3 of SR3<sup>(3)</sup>, with a dust loading factor detailed in Section 9.3 of SR3<sup>(5)</sup>. The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3<sup>(5)</sup>. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

### *Summary of modifications to the default CLEA SR3<sup>(5)</sup> input parameters for residential with home-grown produce land-use scenario*

In summary, the RSK GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3<sup>(5)</sup>. Modifications to the default SR3<sup>(5)</sup> exposure scenarios based on the C4SL exposure scenarios<sup>(3)</sup> are presented in Tables 2 and 3 below.

The final selected GAC are presented by pathway in Table 4 and the combined GAC in Table 5.

**Figure 1: Conceptual model for residential scenario with home-grown produce**

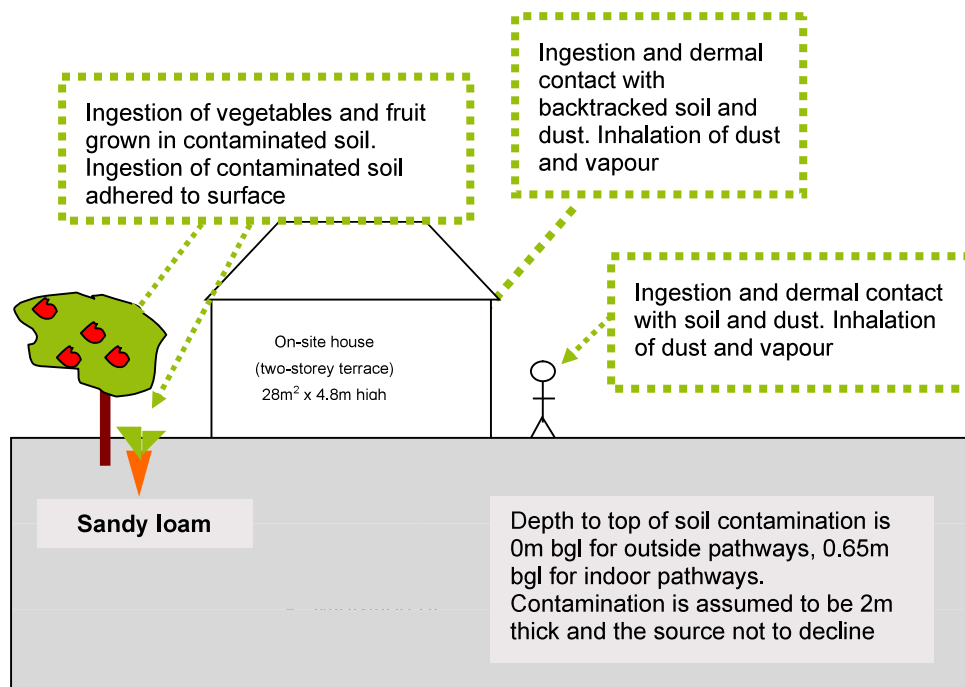


**Table 1: Exposure assessment parameters for residential scenario with home-grown produce – inputs for CLEA model**

| Parameter            | Value                              | Justification                                                                                                                                                                                                                   |
|----------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Land use             | Residential with homegrown produce | Chosen land use                                                                                                                                                                                                                 |
| Receptor             | Female child age 1 to 6            | Key generic assumption given in Box 3.1, SR3 <sup>(5)</sup>                                                                                                                                                                     |
| Building             | Small terraced house               | Key generic assumption given in Box 3.1, SR3. Small, two-storey terraced house chosen, as it is the most conservative residential building type in terms of protection from vapor intrusion (Section 3.4.6, SR3) <sup>(5)</sup> |
| Soil type            | Sandy Loam                         | Most common UK soil type (Section 4.3.1, from Table 3.1, SR3) <sup>(5)</sup>                                                                                                                                                    |
| Start AC (age class) | 1                                  | Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 0–6. From Box 3.1, SR3 <sup>(5)</sup>                                                                      |
| End AC (age class)   | 6                                  |                                                                                                                                                                                                                                 |
| SOM (%)              | 6                                  | Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' <sup>(13)</sup>                                                             |
|                      | 1                                  | To provide SAC for sites where SOM <6% as often observed by RSK                                                                                                                                                                 |
|                      | 2.5                                |                                                                                                                                                                                                                                 |
| pH                   | 7                                  | Model default                                                                                                                                                                                                                   |

**Table 2: Residential with home-grown produce – modified home-grown produce data**

| Name             | Consumption rate 90 <sup>th</sup> percentile (g FW kg <sup>-1</sup> BW day <sup>-1</sup> ) by age class |      |      |      |      |      | Dry weight conversion factor (g DW g <sup>-1</sup> FW) | Home-grown fraction (average)  | Home-grown fraction (high end) | Soil loading factor (g g <sup>-1</sup> DW) | Preparation correction factor |
|------------------|---------------------------------------------------------------------------------------------------------|------|------|------|------|------|--------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------------------|-------------------------------|
|                  | 1                                                                                                       | 2    | 3    | 4    | 5    | 6    |                                                        |                                |                                |                                            |                               |
| Green vegetables | 7.12                                                                                                    | 5.87 | 5.87 | 5.87 | 4.53 | 4.53 | 0.096                                                  | 0.05                           | 0.33                           | 1.00E-03                                   | 2.00E-01                      |
| Root vegetables  | 10.7                                                                                                    | 2.83 | 2.83 | 2.83 | 2.14 | 2.14 | 0.103                                                  | 0.06                           | 0.4                            | 1.00E-03                                   | 1.00E+00                      |
| Tuber vegetables | 16                                                                                                      | 6.6  | 6.6  | 6.6  | 4.95 | 4.95 | 0.21                                                   | 0.02                           | 0.13                           | 1.00E-03                                   | 1.00E+00                      |
| Herbaceous fruit | 1.83                                                                                                    | 3.39 | 3.39 | 3.39 | 2.24 | 2.24 | 0.058                                                  | 0.06                           | 0.4                            | 1.00E-03                                   | 6.00E-01                      |
| Shrub fruit      | 2.23                                                                                                    | 0.46 | 0.46 | 0.46 | 0.19 | 0.19 | 0.166                                                  | 0.09                           | 0.6                            | 1.00E-03                                   | 6.00E-01                      |
| Tree fruit       | 3.82                                                                                                    | 10.3 | 10.3 | 10.3 | 5.16 | 5.16 | 0.157                                                  | 0.04                           | 0.27                           | 1.00E-03                                   | 6.00E-01                      |
| Justification    | Table 3.4, SP1010 <sup>(3)</sup>                                                                        |      |      |      |      |      | Table 6.3, SR3 <sup>(5)</sup>                          | Table 4.19, SR3 <sup>(5)</sup> |                                | Table 6.3, SR3 <sup>(5)</sup>              |                               |

**Table 3: Residential with home-grown produce – modified use and receptor data**

| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Unit                                  | Age class                                                                 |     |       |      |      |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------|-----|-------|------|------|------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                       | 1                                                                         | 2   | 3     | 4    | 5    | 6    |
| EF (soil and dust ingestion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | day yr <sup>-1</sup>                  | 180                                                                       | 365 | 365   | 365  | 365  | 365  |
| EF (consumption of home-grown produce)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | day yr <sup>-1</sup>                  | 180                                                                       | 365 | 365   | 365  | 365  | 365  |
| EF (skin contact, indoor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | day yr <sup>-1</sup>                  | 180                                                                       | 365 | 365   | 365  | 365  | 365  |
| EF (skin contact, outdoor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | day yr <sup>-1</sup>                  | 170                                                                       | 170 | 170   | 170  | 170  | 170  |
| EF (inhalation of dust and vapour, indoor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | day yr <sup>-1</sup>                  | 365                                                                       | 365 | 365   | 365  | 365  | 365  |
| EF (inhalation of dust and vapour, outdoor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | day yr <sup>-1</sup>                  | 365                                                                       | 365 | 365   | 365  | 365  | 365  |
| Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                       | Table 3.5, SP1010 <sup>(3)</sup> ; Table 3.1, SR3 <sup>(5)</sup>          |     |       |      |      |      |
| Soil to skin adherence factor (outdoor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mg cm <sup>-2</sup> day <sup>-1</sup> | 0.1                                                                       | 0.1 | 0.1   | 0.1  | 0.1  | 0.1  |
| Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                       | Table 3.5, SP1010 <sup>(3)</sup>                                          |     |       |      |      |      |
| Inhalation rate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | m <sup>3</sup> day <sup>-1</sup>      | 5.4                                                                       | 8.0 | 8.9/f | 10.1 | 10.1 | 10.1 |
| Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                       | Mean value USEPA, 2011 <sup>(12)</sup> ; Table 3.2, SP1010 <sup>(3)</sup> |     |       |      |      |      |
| Notes: For <b>cadmium</b> , the exposure assessment for a residential land use is based on estimates representative of lifetime exposure AC1-18. This is because the TDI <sub>oral</sub> and TDI <sub>inh</sub> are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period. See the Environment Agency Science Report SC05002/ TOX 3 <sup>(1)</sup> , Science Report SC050021/Cadmium SGV <sup>(1)</sup> and the project report SP1010 <sup>(3)</sup> for more information. |                                       |                                                                           |     |       |      |      |      |

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GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 4

Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

| Compound                                  | Notes | SAC Appropriate to Pathway SOM 1% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) | SAC Appropriate to Pathway SOM 2.5% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) | SAC Appropriate to Pathway SOM 6% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) |          |
|-------------------------------------------|-------|-------------------------------------------|------------|----------|-------------------------------|---------------------------------------------|------------|----------|-------------------------------|-------------------------------------------|------------|----------|-------------------------------|----------|
|                                           |       | Oral                                      | Inhalation | Combined |                               | Oral                                        | Inhalation | Combined |                               | Oral                                      | Inhalation | Combined |                               |          |
| Metals                                    |       |                                           |            |          |                               |                                             |            |          |                               |                                           |            |          |                               |          |
| Arsenic                                   | (a,b) | 3.71E+01                                  | 5.26E+02   | NR       | NR                            | 3.71E+01                                    | 5.26E+02   | NR       | NR                            | 3.71E+01                                  | 5.26E+02   | NR       | NR                            |          |
| Barium                                    | (b)   | 1.34E+03                                  | NR         | NR       | NR                            | 1.34E+03                                    | NR         | NR       | NR                            | 1.34E+03                                  | NR         | NR       | NR                            |          |
| Beryllium                                 |       | 1.13E+02                                  | 1.72E+00   | NR       | NR                            | 1.13E+02                                    | 1.72E+00   | NR       | NR                            | 1.13E+02                                  | 1.72E+00   | NR       | NR                            |          |
| Boron                                     |       | 3.00E+02                                  | 5.20E+06   | NR       | NR                            | 3.00E+02                                    | 5.20E+06   | NR       | NR                            | 3.00E+02                                  | 5.20E+06   | NR       | NR                            |          |
| Cadmium                                   | (a)   | 2.30E+01                                  | 4.88E+02   | 2.21E+01 | NR                            | 2.30E+01                                    | 4.88E+02   | 2.21E+01 | NR                            | 2.30E+01                                  | 4.88E+02   | 2.21E+01 | NR                            |          |
| Chromium (III) - trivalent                | (c)   | 1.84E+04                                  | 9.07E+02   | NR       | NR                            | 1.84E+04                                    | 9.07E+02   | NR       | NR                            | 1.84E+04                                  | 9.07E+02   | NR       | NR                            |          |
| Chromium (VI) - hexavalent                | (a,d) | 5.85E+01                                  | 2.06E+01   | NR       | NR                            | 5.85E+01                                    | 2.06E+01   | NR       | NR                            | 5.85E+01                                  | 2.06E+01   | NR       | NR                            |          |
| Copper                                    |       | 2.72E+03                                  | 1.41E+04   | 2.47E+03 | NR                            | 2.72E+03                                    | 1.41E+04   | 2.47E+03 | NR                            | 2.72E+03                                  | 1.41E+04   | 2.47E+03 | NR                            |          |
| Lead                                      | (a)   | 2.01E+02                                  | NR         | NR       | NR                            | 2.01E+02                                    | NR         | NR       | NR                            | 2.01E+02                                  | NR         | NR       | NR                            |          |
| Elemental Mercury (Hg <sup>0</sup> )      | (d)   | NR                                        | 2.35E-01   | NR       | 4.31E+00                      | NR                                          | 5.60E-01   | NR       | 1.07E+01                      | NR                                        | 1.22E+00   | NR       | 2.58E+01                      |          |
| Inorganic Mercury (Hg <sup>2+</sup> )     |       | 3.95E+01                                  | 3.63E+03   | 3.91E+01 | NR                            | 3.95E+01                                    | 3.63E+03   | 3.91E+01 | NR                            | 3.95E+01                                  | 3.63E+03   | 3.91E+01 | NR                            |          |
| Methyl Mercury (Hg <sup>4+</sup> )        |       | 1.26E+01                                  | 1.87E+01   | 7.52E+00 | 7.33E+01                      | 1.26E+01                                    | 3.62E+01   | 9.34E+00 | 1.42E+02                      | 1.26E+01                                  | 7.68E+01   | 1.08E+01 | 3.04E+02                      |          |
| Nickel                                    | (d)   | 1.27E+02                                  | 1.81E+02   | NR       | NR                            | 1.27E+02                                    | 1.81E+02   | NR       | NR                            | 1.27E+02                                  | 1.81E+02   | NR       | NR                            |          |
| Selenium                                  | (b)   | 2.58E+02                                  | NR         | NR       | NR                            | 2.58E+02                                    | NR         | NR       | NR                            | 2.58E+02                                  | NR         | NR       | NR                            |          |
| Vanadium                                  |       | 4.13E+02                                  | 1.46E+03   | NR       | NR                            | 4.13E+02                                    | 1.46E+03   | NR       | NR                            | 4.13E+02                                  | 1.46E+03   | NR       | NR                            |          |
| Zinc                                      | (b)   | 3.86E+03                                  | 3.63E+07   | NR       | NR                            | 3.86E+03                                    | 3.63E+07   | NR       | NR                            | 3.86E+03                                  | 3.63E+07   | NR       | NR                            |          |
| Cyanide (free)                            |       | 1.37E+00                                  | 1.37E+04   | 1.37E+00 | NR                            | 1.37E+00                                    | 1.37E+04   | 1.37E+00 | NR                            | 1.37E+00                                  | 1.37E+04   | 1.37E+00 | NR                            |          |
| Volatile Organic Compounds                |       |                                           |            |          |                               |                                             |            |          |                               |                                           |            |          |                               |          |
| Benzene                                   | (a)   | 2.62E-01                                  | 9.01E-01   | 2.03E-01 | 1.22E+03                      | 5.39E-01                                    | 1.68E+00   | 4.08E-01 | 2.26E+03                      | 1.16E+00                                  | 3.48E+00   | 8.72E-01 | 4.71E+03                      |          |
| Toluene                                   |       | 1.53E+02                                  | 9.08E+02   | 1.31E+02 | 8.69E+02                      | 3.49E+02                                    | 2.00E+03   | 2.97E+02 | 1.92E+03                      | 7.95E+02                                  | 4.55E+03   | 6.77E+02 | 4.36E+03                      |          |
| Ethylbenzene                              |       | 1.10E+02                                  | 8.34E+01   | 4.74E+01 | 5.18E+02                      | 2.61E+02                                    | 1.96E+02   | 1.12E+02 | 1.22E+03                      | 6.00E+02                                  | 4.58E+02   | 2.60E+02 | 2.84E+03                      |          |
| Xylene - m                                |       | 2.10E+02                                  | 8.25E+01   | 5.92E+01 | 6.25E+02                      | 5.01E+02                                    | 1.95E+02   | 1.40E+02 | 1.47E+03                      | 1.15E+03                                  | 4.56E+02   | 3.27E+02 | 3.46E+03                      |          |
| Xylene - o                                |       | 1.92E+02                                  | 8.87E+01   | 6.07E+01 | 4.78E+02                      | 4.56E+02                                    | 2.08E+02   | 1.43E+02 | 1.12E+03                      | 1.05E+03                                  | 4.86E+02   | 3.32E+02 | 2.62E+03                      |          |
| Xylene - p                                |       | 1.98E+02                                  | 7.93E+01   | 5.66E+01 | 5.76E+02                      | 4.70E+02                                    | 1.86E+02   | 1.33E+02 | 1.35E+03                      | 1.08E+03                                  | 4.36E+02   | 3.10E+02 | 3.17E+03                      |          |
| Total xylene                              |       | 1.92E+02                                  | 7.93E+01   | 5.66E+01 | 6.25E+02                      | 4.56E+02                                    | 1.86E+02   | 1.33E+02 | 1.47E+03                      | 1.05E+03                                  | 4.36E+02   | 3.10E+02 | 3.46E+03                      |          |
| Methyl tertiary-Butyl ether (MTBE)        |       | 1.54E+02                                  | 1.04E+02   | 6.22E+01 | 2.04E+04                      | 2.97E+02                                    | 1.69E+02   | 1.08E+02 | 3.31E+04                      | 6.03E+02                                  | 3.21E+02   | 2.10E+02 | 6.27E+04                      |          |
| 1,1,1,2-Tetrachloroethane                 |       | 5.39E+00                                  | 1.54E+00   | 1.20E+00 | 2.60E+03                      | 1.27E+01                                    | 3.56E+00   | 2.78E+00 | 6.02E+03                      | 2.92E+01                                  | 8.29E+00   | 6.46E+00 | 1.40E+04                      |          |
| 1,1,2,2-Tetrachloroethane                 |       | 2.81E+00                                  | 3.92E+00   | 1.64E+00 | 2.67E+03                      | 6.10E+00                                    | 8.04E+00   | 3.47E+00 | 5.46E+03                      | 1.36E+01                                  | 1.76E+01   | 7.67E+00 | 1.20E+04                      |          |
| 1,1,1-Trichloroethane                     |       | 3.33E+02                                  | 9.01E+00   | 8.77E+00 | 1.43E+03                      | 7.26E+02                                    | 1.84E+01   | 1.80E+01 | 2.92E+03                      | 1.62E+03                                  | 4.04E+01   | 3.94E+01 | 6.39E+03                      |          |
| 1,1,2 Trichloroethane                     |       | 1.95E+00                                  | 1.25E+00   | 7.62E-01 | 4.03E+03                      | 4.21E+00                                    | 2.55E+00   | 1.59E+00 | 8.21E+03                      | 9.35E+00                                  | 5.59E+00   | 3.50E+00 | 1.80E+04                      |          |
| 1,1-Dichloroethene                        |       | 1.93E+01                                  | 3.29E-01   | 3.23E-01 | 2.23E+03                      | 3.85E+01                                    | 5.82E-01   | 5.74E-01 | 3.94E+03                      | 8.15E+01                                  | 1.17E+00   | 1.16E+00 | 7.94E+03                      |          |
| 1,2-Dichloroethane                        |       | 3.17E-02                                  | 9.20E-03   | 7.13E-03 | 3.41E+03                      | 5.73E-02                                    | 1.33E-02   | 1.08E-02 | 4.91E+03                      | 1.09E-01                                  | 2.28E-02   | 1.88E-02 | 8.43E+03                      |          |
| 1,2,4-Trimethylbenzene                    |       | NR                                        | 1.76E+00   | NR       | 4.74E+02                      | NR                                          | 4.26E+00   | NR       | NR                            | 1.16E+03                                  | NR         | 9.72E+00 | NR                            | 2.76E+03 |
| 1,3,5-Trimethylbenzene                    | (e)   | NR                                        | NR         | NR       | 2.30E+02                      | NR                                          | NR         | NR       | 5.52E+02                      | NR                                        | NR         | NR       | 1.30E+03                      |          |
| 1,2-Dichloropropane                       |       | 4.28E+00                                  | 3.40E-02   | 3.37E-02 | 1.19E+03                      | 8.44E+00                                    | 6.00E-02   | 5.96E-02 | 2.11E+03                      | 1.77E+01                                  | 1.21E-01   | 1.20E-01 | 4.24E+03                      |          |
| Carbon Tetrachloride (tetrachloromethane) |       | 3.10E+00                                  | 2.58E-02   | 2.57E-02 | 1.52E+03                      | 7.11E+00                                    | 5.65E-02   | 5.62E-02 | 3.32E+03                      | 1.62E+01                                  | 1.28E-01   | 1.27E-01 | 7.54E+03                      |          |
| Chloroethane                              |       | NR                                        | 1.17E+01   | NR       | 2.61E+03                      | NR                                          | 1.59E+01   | NR       | 3.54E+03                      | NR                                        | 2.57E+01   | NR       | 5.71E+03                      |          |
| Chloromethane                             |       | NR                                        | 1.17E-02   | NR       | 1.91E+03                      | NR                                          | 1.38E-02   | NR       | 2.24E+03                      | NR                                        | 1.85E-02   | NR       | 2.99E+03                      |          |
| Cis 1,2 Dichloroethene                    |       | 1.56E-01                                  | NR         | NR       | 3.94E+03                      | 2.66E-01                                    | NR         | NR       | 6.61E+03                      | 5.18E-01                                  | NR         | NR       | 1.29E+04                      |          |
| Dichloromethane                           |       | 7.04E-01                                  | 3.05E+00   | 6.24E-01 | 7.27E+03                      | 1.27E+00                                    | 4.06E+00   | 1.08E+00 | 9.68E+03                      | 2.33E+00                                  | 6.42E+00   | 1.92E+00 | 1.53E+04                      |          |
| Tetrachloroethene (PCE)                   |       | 1.33E+01                                  | 3.19E-01   | 3.11E-01 | 4.24E+02                      | 3.11E+01                                    | 7.15E-01   | 6.99E-01 | 9.51E+02                      | 7.12E+01                                  | 1.64E+00   | 1.60E+00 | 2.18E+03                      |          |
| Trans 1,2 Dichloroethene                  |       | 6.45E+00                                  | 2.76E-01   | NR       | 3.42E+03                      | 1.29E+01                                    | 4.99E-01   | NR       | 6.17E+03                      | 2.74E+01                                  | 1.02E+00   | NR       | 1.26E+04                      |          |
| Trichloroethene (TCE)                     |       | 9.30E-03                                  | 3.61E-02   | NR       | 1.54E+03                      | 1.95E-02                                    | 7.57E-02   | NR       | 3.22E+03                      | 4.34E-02                                  | 1.68E-01   | NR       | 7.14E+03                      |          |
| Vinyl Chloride (chloroethene)             |       | 1.13E-02                                  | 1.47E-02   | 6.38E-03 | 1.36E+03                      | 2.09E-02                                    | 1.90E-02   | 9.97E-03 | 1.76E+03                      | 3.88E-02                                  | 2.91E-02   | 1.66E-02 | 2.69E+03                      |          |
| Semi-Volatile Organic Compounds           |       |                                           |            |          |                               |                                             |            |          |                               |                                           |            |          |                               |          |
| 2-Chloronaphthalene                       |       | 2.76E+02                                  | 5.39E+00   | 5.29E+00 | 1.14E+02                      | 6.59E+02                                    | 1.33E+01   | 1.30E+01 | 2.80E+02                      | 1.45E+03                                  | 3.17E+01   | 3.10E+01 | 6.69E+02                      |          |

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 4

Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

| Compound               | Notes | SAC Appropriate to Pathway SOM 1% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) | SAC Appropriate to Pathway SOM 2.5% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) | SAC Appropriate to Pathway SOM 6% (mg/kg) |            |          | Soil Saturation Limit (mg/kg) |
|------------------------|-------|-------------------------------------------|------------|----------|-------------------------------|---------------------------------------------|------------|----------|-------------------------------|-------------------------------------------|------------|----------|-------------------------------|
|                        |       | Oral                                      | Inhalation | Combined |                               | Oral                                        | Inhalation | Combined |                               | Oral                                      | Inhalation | Combined |                               |
| Acenaphthene           |       | 2.27E+02                                  | 4.86E+04   | 2.26E+02 | 5.70E+01                      | 5.41E+02                                    | 1.18E+05   | 5.38E+02 | 1.41E+02                      | 1.18E+03                                  | 2.68E+05   | 1.17E+03 | 3.38E+02                      |
| Acenaphthylene         |       | 1.85E+02                                  | 4.59E+04   | 1.84E+02 | 8.61E+01                      | 4.42E+02                                    | 1.11E+05   | 4.40E+02 | 2.12E+02                      | 9.78E+02                                  | 2.53E+05   | 9.74E+02 | 5.06E+02                      |
| Anthracene             |       | 2.43E+03                                  | 1.53E+05   | 2.39E+03 | 1.17E+00                      | 5.53E+03                                    | 3.77E+05   | 5.45E+03 | 2.91E+00                      | 1.10E+04                                  | 8.76E+05   | 1.09E+04 | 6.96E+00                      |
| Benzo(a)anthracene     |       | 1.01E+01                                  | 2.47E+01   | 7.18E+00 | 1.71E+00                      | 1.42E+01                                    | 4.37E+01   | 1.07E+01 | 4.28E+00                      | 1.69E+01                                  | 6.26E+01   | 1.33E+01 | 1.03E+01                      |
| Benzo(a)pyrene         | (a)   | 4.96E+00                                  | 3.51E+01   | NR       | 9.11E-01                      | 4.96E+00                                    | 3.77E+01   | NR       | 2.28E+00                      | 4.96E+00                                  | 3.89E+01   | NR       | 5.46E+00                      |
| Benzo(b)fluoranthene   |       | 2.96E+00                                  | 1.93E+01   | 2.56E+00 | 1.22E+00                      | 3.89E+00                                    | 2.13E+01   | 3.29E+00 | 3.04E+00                      | 4.43E+00                                  | 2.22E+01   | 3.69E+00 | 7.29E+00                      |
| Benzo(g,h,i)perylene   |       | 3.77E+02                                  | 1.87E+03   | 3.14E+02 | 1.54E-02                      | 4.09E+02                                    | 1.94E+03   | 3.38E+02 | 3.85E-02                      | 4.23E+02                                  | 1.97E+03   | 3.48E+02 | 9.23E-02                      |
| Benzo(k)fluoranthene   |       | 8.92E+01                                  | 5.41E+02   | 7.66E+01 | 6.87E-01                      | 1.10E+02                                    | 5.76E+02   | 9.22E+01 | 1.72E+00                      | 1.21E+02                                  | 5.91E+02   | 1.00E+02 | 4.12E+00                      |
| Chrysene               |       | 1.66E+01                                  | 1.19E+02   | 1.46E+01 | 4.40E-01                      | 2.54E+01                                    | 1.49E+02   | 2.17E+01 | 1.10E+00                      | 3.19E+01                                  | 1.66E+02   | 2.67E+01 | 2.64E+00                      |
| Dibenzo(a,h)anthracene |       | 2.90E-01                                  | 1.45E+00   | 2.41E-01 | 3.93E-03                      | 3.43E-01                                    | 1.64E+00   | 2.84E-01 | 9.82E-03                      | 3.69E-01                                  | 1.74E+00   | 3.04E-01 | 2.36E-02                      |
| Fluoranthene           |       | 2.87E+02                                  | 3.83E+04   | 2.85E+02 | 1.89E+01                      | 5.63E+02                                    | 8.87E+04   | 5.60E+02 | 4.73E+01                      | 9.00E+02                                  | 1.83E+05   | 8.96E+02 | 1.13E+02                      |
| Fluorene               |       | 1.77E+02                                  | 6.20E+03   | 1.72E+02 | 3.09E+01                      | 4.19E+02                                    | 1.53E+04   | 4.07E+02 | 7.65E+01                      | 8.98E+02                                  | 3.62E+04   | 8.77E+02 | 1.83E+02                      |
| Hexachloroethane       |       | 2.68E-01                                  | NR         | NR       | 8.17E+00                      | 6.57E-01                                    | NR         | NR       | 2.01E+01                      | 1.55E+00                                  | NR         | NR       | 4.81E+01                      |
| Indeno(1,2,3-cd)pyrene |       | 3.09E+01                                  | 2.12E+02   | 2.70E+01 | 6.13E-02                      | 4.22E+01                                    | 2.38E+02   | 3.59E+01 | 1.53E-01                      | 4.92E+01                                  | 2.50E+02   | 4.11E+01 | 3.68E-01                      |
| Naphthalene            |       | 2.78E+01                                  | 2.33E+01   | 1.27E+01 | 7.64E+01                      | 6.66E+01                                    | 5.58E+01   | 3.04E+01 | 1.83E+02                      | 1.53E+02                                  | 1.31E+02   | 7.06E+01 | 4.32E+02                      |
| Phenanthrene           |       | 9.85E+01                                  | 7.17E+03   | 9.72E+01 | 3.60E+01                      | 2.24E+02                                    | 1.76E+04   | 2.22E+02 | 8.96E+01                      | 4.48E+02                                  | 4.07E+04   | 4.43E+02 | 2.14E+02                      |
| Pyrene                 |       | 6.25E+02                                  | 8.79E+04   | 6.20E+02 | 2.20E+00                      | 1.25E+03                                    | 2.04E+05   | 1.24E+03 | 5.49E+00                      | 2.05E+03                                  | 4.23E+05   | 2.04E+03 | 1.32E+01                      |
| Phenol                 |       | 1.60E+02                                  | 4.58E+02   | 1.20E+02 | 2.42E+04                      | 2.96E+02                                    | 6.95E+02   | 2.09E+02 | 3.81E+04                      | 5.86E+02                                  | 1.19E+03   | 3.93E+02 | 7.03E+04                      |

**Total Petroleum Hydrocarbons**

|                                                            |     |          |          |          |          |          |          |          |          |          |          |          |          |
|------------------------------------------------------------|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aliphatic hydrocarbons EC <sub>5</sub> -EC <sub>6</sub>    |     | 4.99E+03 | 4.24E+01 | 4.23E+01 | 3.04E+02 | 1.13E+04 | 7.79E+01 | 7.78E+01 | 5.58E+02 | 2.50E+04 | 1.61E+02 | 1.60E+02 | 1.15E+03 |
| Aliphatic hydrocarbons >EC <sub>5</sub> -EC <sub>6</sub>   |     | 1.49E+04 | 1.04E+02 | 1.03E+02 | 1.44E+02 | 3.43E+04 | 2.31E+02 | 2.31E+02 | 3.22E+02 | 7.11E+04 | 5.29E+02 | 5.28E+02 | 7.36E+02 |
| Aliphatic hydrocarbons >EC <sub>6</sub> -EC <sub>10</sub>  |     | 1.61E+03 | 2.68E+01 | 2.67E+01 | 7.77E+01 | 2.91E+03 | 6.55E+01 | 6.51E+01 | 1.90E+02 | 4.26E+03 | 1.56E+02 | 1.54E+02 | 4.51E+02 |
| Aliphatic hydrocarbons >EC <sub>10</sub> -EC <sub>12</sub> |     | 4.57E+03 | 1.33E+02 | 1.32E+02 | 4.75E+01 | 5.51E+03 | 3.31E+02 | 3.26E+02 | 1.18E+02 | 5.98E+03 | 7.93E+02 | 7.65E+02 | 2.83E+02 |
| Aliphatic hydrocarbons >EC <sub>12</sub> -EC <sub>16</sub> |     | 6.27E+03 | 1.11E+03 | 1.06E+03 | 2.37E+01 | 6.34E+03 | 2.78E+03 | 2.41E+03 | 5.91E+01 | 6.36E+03 | 6.67E+03 | 4.34E+03 | 1.42E+02 |
| Aliphatic hydrocarbons >EC <sub>16</sub> -EC <sub>35</sub> | (b) | 6.46E+04 | NR       | NR       | 8.48E+00 | 9.17E+04 | NR       | NR       | 2.12E+01 | 1.10E+05 | NR       | NR       | 5.09E+01 |
| Aliphatic hydrocarbons >EC <sub>35</sub> -EC <sub>44</sub> | (b) | 6.46E+04 | NR       | NR       | 8.48E+00 | 9.17E+04 | NR       | NR       | 2.12E+01 | 1.10E+05 | NR       | NR       | 5.09E+01 |
| Aromatic hydrocarbons >EC8-EC <sub>10</sub>                |     | 5.76E+01 | 4.74E+01 | 3.45E+01 | 6.13E+02 | 1.38E+02 | 1.16E+02 | 8.38E+01 | 1.50E+03 | 3.07E+02 | 2.77E+02 | 1.94E+02 | 3.58E+02 |
| Aromatic hydrocarbons >EC <sub>10</sub> -EC <sub>12</sub>  |     | 8.29E+01 | 2.58E+02 | 7.52E+01 | 3.64E+02 | 1.96E+02 | 6.39E+02 | 1.79E+02 | 8.99E+02 | 4.25E+02 | 1.52E+03 | 3.91E+02 | 2.15E+03 |
| Aromatic hydrocarbons >EC <sub>12</sub> -EC <sub>16</sub>  |     | 1.47E+02 | 2.85E+03 | 1.45E+02 | 1.69E+02 | 3.36E+02 | 7.07E+03 | 3.32E+02 | 4.19E+02 | 6.81E+02 | 1.68E+04 | 6.74E+02 | 1.00E+03 |
| Aromatic hydrocarbons >EC <sub>16</sub> -EC <sub>21</sub>  | (b) | 2.63E+02 | NR       | NR       | 5.37E+01 | 5.45E+02 | NR       | NR       | 1.34E+02 | 9.34E+02 | NR       | NR       | 3.21E+02 |
| Aromatic hydrocarbons >EC <sub>21</sub> -EC <sub>35</sub>  | (b) | 1.09E+03 | NR       | NR       | 4.83E+00 | 1.47E+03 | NR       | NR       | 1.21E+01 | 1.70E+03 | NR       | NR       | 2.90E+01 |
| Aromatic hydrocarbons >EC <sub>35</sub> -EC <sub>44</sub>  | (b) | 1.09E+03 | NR       | NR       | 4.83E+00 | 1.47E+03 | NR       | NR       | 1.21E+01 | 1.70E+03 | NR       | NR       | 2.90E+01 |

Notes:

EC - equivalent carbon. SAC - soil assessment criteria.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.

|  |                                                                                                                                                                                                         |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Calculated SAC exceeds soil saturation limit and may significantly affect the interpretation of any exceedances as the contribution of the indoor and outdoor vapour pathway to total exposure is >10%. |
|  | Calculated SAC exceeds soil saturation limit but the exceedance will not affect the SAC significantly as the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.           |
|  | Calculated SAC does not exceed the soil saturation limit.                                                                                                                                               |

The SAC for organic compounds are dependant upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway (Section 10.1.1, SR3)

(a) SAC for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the C4SL toxicology data.

(b) SAC for boron and selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.

(c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LQM/CIEH 2015 Section 6.8)

(d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.

(e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used.

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



**Table 5**  
Human Health Generic Assessment Criteria for Residential with home-grown produce

| Compound                                                                                                                                                                                                                                                                                       | SAC for Soil SOM 1%<br>(mg/kg)                                                                                                                         | SAC for Soil SOM 2.5%<br>(mg/kg) | SAC for Soil SOM 6%<br>(mg/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------|
| <b>Metals</b>                                                                                                                                                                                                                                                                                  |                                                                                                                                                        |                                  |                                |
| Arsenic                                                                                                                                                                                                                                                                                        | 37                                                                                                                                                     | 37                               | 37                             |
| Barium                                                                                                                                                                                                                                                                                         | 1,300                                                                                                                                                  | 1,300                            | 1,300                          |
| Beryllium                                                                                                                                                                                                                                                                                      | 1.7                                                                                                                                                    | 1.7                              | 1.7                            |
| Boron                                                                                                                                                                                                                                                                                          | 300                                                                                                                                                    | 300                              | 300                            |
| Cadmium                                                                                                                                                                                                                                                                                        | 22                                                                                                                                                     | 22                               | 22                             |
| Chromium (III) - trivalent                                                                                                                                                                                                                                                                     | 910                                                                                                                                                    | 910                              | 910                            |
| Chromium (VI) - hexavalent                                                                                                                                                                                                                                                                     | 21                                                                                                                                                     | 21                               | 21                             |
| Copper                                                                                                                                                                                                                                                                                         | 2,500                                                                                                                                                  | 2,500                            | 2,500                          |
| Lead                                                                                                                                                                                                                                                                                           | 200                                                                                                                                                    | 200                              | 200                            |
| Elemental Mercury (Hg <sup>0</sup> )                                                                                                                                                                                                                                                           | 0.2                                                                                                                                                    | 0.6                              | 1.2                            |
| Inorganic Mercury (Hg <sup>2+</sup> )                                                                                                                                                                                                                                                          | 39                                                                                                                                                     | 39                               | 39                             |
| Methyl Mercury (Hg <sup>4+</sup> )                                                                                                                                                                                                                                                             | 10                                                                                                                                                     | 10                               | 10                             |
| Nickel                                                                                                                                                                                                                                                                                         | 130                                                                                                                                                    | 130                              | 130                            |
| Selenium                                                                                                                                                                                                                                                                                       | 258                                                                                                                                                    | 258                              | 258                            |
| Vanadium                                                                                                                                                                                                                                                                                       | 410                                                                                                                                                    | 410                              | 410                            |
| Zinc                                                                                                                                                                                                                                                                                           | 3,900                                                                                                                                                  | 3,900                            | 3,900                          |
| Cyanide (free)                                                                                                                                                                                                                                                                                 | 1.4                                                                                                                                                    | 1.4                              | 1.4                            |
| <b>Volatile Organic Compounds</b>                                                                                                                                                                                                                                                              |                                                                                                                                                        |                                  |                                |
| Benzene                                                                                                                                                                                                                                                                                        | 0.20                                                                                                                                                   | 0.41                             | 0.87                           |
| Toluene                                                                                                                                                                                                                                                                                        | 130                                                                                                                                                    | 300                              | 680                            |
| Ethylbenzene                                                                                                                                                                                                                                                                                   | 50                                                                                                                                                     | 110                              | 260                            |
| Xylene - m                                                                                                                                                                                                                                                                                     | 59                                                                                                                                                     | 140                              | 327                            |
| Xylene - o                                                                                                                                                                                                                                                                                     | 61                                                                                                                                                     | 143                              | 332                            |
| Xylene - p                                                                                                                                                                                                                                                                                     | 57                                                                                                                                                     | 133                              | 310                            |
| Total xylene                                                                                                                                                                                                                                                                                   | 57                                                                                                                                                     | 133                              | 310                            |
| Methyl tertiary-Butyl ether (MTBE)                                                                                                                                                                                                                                                             | 60                                                                                                                                                     | 110                              | 210                            |
| 1,1,1,2 Tetrachloroethane                                                                                                                                                                                                                                                                      | 1.20                                                                                                                                                   | 2.78                             | 6.46                           |
| 1,1,2,2-Tetrachloroethane                                                                                                                                                                                                                                                                      | 1.6                                                                                                                                                    | 3.5                              | 7.7                            |
| 1,1,1-Trichloroethane                                                                                                                                                                                                                                                                          | 9                                                                                                                                                      | 18                               | 39                             |
| 1,1,2 Trichloroethane                                                                                                                                                                                                                                                                          | 0.8                                                                                                                                                    | 1.6                              | 3.5                            |
| 1,1-Dichloroethane                                                                                                                                                                                                                                                                             | 0.32                                                                                                                                                   | 0.57                             | 1.16                           |
| 1,2-Dichloroethane                                                                                                                                                                                                                                                                             | 0.007                                                                                                                                                  | 0.011                            | 0.019                          |
| 1,2,4-Trimethylbenzene                                                                                                                                                                                                                                                                         | 1.8                                                                                                                                                    | 4.3                              | 9.7                            |
| 1,3,5-Trimethylbenzene                                                                                                                                                                                                                                                                         | NR                                                                                                                                                     | NR                               | NR                             |
| 1,2-Dichloropropane                                                                                                                                                                                                                                                                            | 0.034                                                                                                                                                  | 0.060                            | 0.120                          |
| Carbon Tetrachloride (tetrachloromethane)                                                                                                                                                                                                                                                      | 0.026                                                                                                                                                  | 0.056                            | 0.127                          |
| Chloroethane                                                                                                                                                                                                                                                                                   | 11.7                                                                                                                                                   | 15.9                             | 25.7                           |
| Chloromethane                                                                                                                                                                                                                                                                                  | 0.012                                                                                                                                                  | 0.014                            | 0.019                          |
| Cis 1,2 Dichloroethene                                                                                                                                                                                                                                                                         | 0.16                                                                                                                                                   | 0.27                             | 0.52                           |
| Dichloromethane                                                                                                                                                                                                                                                                                | 0.62                                                                                                                                                   | 1.08                             | 1.92                           |
| Tetrachloroethene (PCE)                                                                                                                                                                                                                                                                        | 0.31                                                                                                                                                   | 0.70                             | 1.60                           |
| Trans 1,2 Dichloroethene                                                                                                                                                                                                                                                                       | 0.28                                                                                                                                                   | 0.50                             | 1.02                           |
| Trichloroethene (TCE)                                                                                                                                                                                                                                                                          | 0.009                                                                                                                                                  | 0.020                            | 0.043                          |
| Vinyl Chloride (chloroethene)                                                                                                                                                                                                                                                                  | 0.006                                                                                                                                                  | 0.010                            | 0.017                          |
| <b>Semi-Volatile Organic Compounds</b>                                                                                                                                                                                                                                                         |                                                                                                                                                        |                                  |                                |
| 2-Chloronaphthalene                                                                                                                                                                                                                                                                            | 5                                                                                                                                                      | 13                               | 31                             |
| Acenaphthene                                                                                                                                                                                                                                                                                   | 230                                                                                                                                                    | 540                              | 1,170                          |
| Acenaphthylene                                                                                                                                                                                                                                                                                 | 180                                                                                                                                                    | 440                              | 970                            |
| Anthracene                                                                                                                                                                                                                                                                                     | 2,400                                                                                                                                                  | 5,500                            | 10,900                         |
| Benzo(a)anthracene                                                                                                                                                                                                                                                                             | 7                                                                                                                                                      | 11                               | 13                             |
| Benzo(a)pyrene                                                                                                                                                                                                                                                                                 | 5                                                                                                                                                      | 5                                | 5                              |
| Benzo(b)fluoranthene                                                                                                                                                                                                                                                                           | 2.6                                                                                                                                                    | 3.3                              | 3.7                            |
| Benzo(g,h,i)perylene                                                                                                                                                                                                                                                                           | 310                                                                                                                                                    | 340                              | 350                            |
| Benzo(k)fluoranthene                                                                                                                                                                                                                                                                           | 77                                                                                                                                                     | 92                               | 100                            |
| Chrysene                                                                                                                                                                                                                                                                                       | 15                                                                                                                                                     | 22                               | 27                             |
| Dibenzo(a,h)anthracene                                                                                                                                                                                                                                                                         | 0.24                                                                                                                                                   | 0.28                             | 0.30                           |
| Fluoranthene                                                                                                                                                                                                                                                                                   | 290                                                                                                                                                    | 560                              | 900                            |
| Fluorene                                                                                                                                                                                                                                                                                       | 170                                                                                                                                                    | 410                              | 880                            |
| Hexachloroethane                                                                                                                                                                                                                                                                               | 0.27                                                                                                                                                   | 0.66                             | 1.55                           |
| Indeno(1,2,3-cd)pyrene                                                                                                                                                                                                                                                                         | 13                                                                                                                                                     | 30                               | 71                             |
| Naphthalene                                                                                                                                                                                                                                                                                    | 13                                                                                                                                                     | 30                               | 71                             |
| Phenanthrene                                                                                                                                                                                                                                                                                   | 100                                                                                                                                                    | 220                              | 440                            |
| Pyrene                                                                                                                                                                                                                                                                                         | 620                                                                                                                                                    | 1,240                            | 2,040                          |
| Phenol                                                                                                                                                                                                                                                                                         | 120                                                                                                                                                    | 210                              | 390                            |
| <b>Total Petroleum Hydrocarbons</b>                                                                                                                                                                                                                                                            |                                                                                                                                                        |                                  |                                |
| Aliphatic hydrocarbons EC <sub>5</sub> -EC <sub>6</sub>                                                                                                                                                                                                                                        | 42                                                                                                                                                     | 78                               | 160                            |
| Aliphatic hydrocarbons >EC <sub>6</sub> -EC <sub>8</sub>                                                                                                                                                                                                                                       | 100                                                                                                                                                    | 230                              | 530                            |
| Aliphatic hydrocarbons >EC <sub>8</sub> -EC <sub>10</sub>                                                                                                                                                                                                                                      | 27                                                                                                                                                     | 65                               | 154                            |
| Aliphatic hydrocarbons >EC <sub>10</sub> -EC <sub>12</sub>                                                                                                                                                                                                                                     | 130 (48)                                                                                                                                               | 330 (118)                        | 760 (283)                      |
| Aliphatic hydrocarbons >EC <sub>12</sub> -EC <sub>16</sub>                                                                                                                                                                                                                                     | 1,100 (24)                                                                                                                                             | 2,400 (59)                       | 4,300 (142)                    |
| Aliphatic hydrocarbons >EC <sub>16</sub> -EC <sub>35</sub>                                                                                                                                                                                                                                     | 65,000 (8)                                                                                                                                             | 92,000 (21)                      | 110,000                        |
| Aliphatic hydrocarbons >EC <sub>35</sub> -EC <sub>44</sub>                                                                                                                                                                                                                                     | 65,000 (8)                                                                                                                                             | 92,000 (21)                      | 110,000                        |
| Aromatic hydrocarbons >EC <sub>6</sub> -EC <sub>10</sub>                                                                                                                                                                                                                                       | 30                                                                                                                                                     | 80                               | 190                            |
| Aromatic hydrocarbons >EC <sub>10</sub> -EC <sub>12</sub>                                                                                                                                                                                                                                      | 80                                                                                                                                                     | 180                              | 390                            |
| Aromatic hydrocarbons >EC <sub>12</sub> -EC <sub>16</sub>                                                                                                                                                                                                                                      | 140                                                                                                                                                    | 330                              | 670                            |
| Aromatic hydrocarbons >EC <sub>16</sub> -EC <sub>21</sub>                                                                                                                                                                                                                                      | 260                                                                                                                                                    | 540                              | 930                            |
| Aromatic hydrocarbons >EC <sub>21</sub> -EC <sub>35</sub>                                                                                                                                                                                                                                      | 1,100                                                                                                                                                  | 1,500                            | 1,700                          |
| Aromatic hydrocarbons >EC <sub>35</sub> -EC <sub>44</sub>                                                                                                                                                                                                                                      | 1,100                                                                                                                                                  | 1,500                            | 1,700                          |
| <b>Minerals</b>                                                                                                                                                                                                                                                                                |                                                                                                                                                        |                                  |                                |
| Asbestos                                                                                                                                                                                                                                                                                       | Stage 1 test – No asbestos detected with ID; Stage 2 test - <0.001% dry weight (exceedance of either equates to an exceedance of the GAC) <sup>1</sup> |                                  |                                |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                  |                                                                                                                                                        |                                  |                                |
| - Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data.                                                                                                                                               |                                                                                                                                                        |                                  |                                |
| NR = SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used                                                                                                                                                        |                                                                                                                                                        |                                  |                                |
| EC = equivalent carbon, SAC = soil assessment criteria.                                                                                                                                                                                                                                        |                                                                                                                                                        |                                  |                                |
| <sup>1</sup> LOD for weight of asbestos per unit weight of soil calculated on a dry weight basis using PLM, handpicking and gravimetry.                                                                                                                                                        |                                                                                                                                                        |                                  |                                |
| The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58.                                                                                                                                        |                                                                                                                                                        |                                  |                                |
| 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.                                                                                                                                                                                                         |                                                                                                                                                        |                                  |                                |
| SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3. |                                                                                                                                                        |                                  |                                |
| (VALUE IN BRACKETS)                                                                                                                                                                                                                                                                            |                                                                                                                                                        |                                  |                                |
| RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/ClEH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.                   |                                                                                                                                                        |                                  |                                |

## **APPENDIX J**

### **GENERIC ASSESSMENT CRITERIA FOR PHYTOTOXIC EFFECTS**

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Several compounds can inhibit plant growth; hence it is important to have generic assessment criteria (GAC) to promote healthy plant growth. In the absence of other published GAC, the GAC have been obtained from legislation (UK and European) and guidance related to the use of sewage sludge on agricultural fields.

The Council of European Communities Sewage Sludge Directive (86/278/EEC) dated 1986, has been transposed into UK law by Statutory Instrument No. 1263, The Sludge (use in Agriculture) Regulations 1989 (Public Health England, Wales and Scotland), as amended in 1990 and The Sludge (use in Agriculture) Regulations (Northern Ireland) SR No, 245, 1990. In addition, the Department of Environment (DoE) produced a Code of Practice (CoP) (Updated 2<sup>nd</sup> Edition) in 2006 which provided guidance on the application of sewage sludge on agricultural land (however the status of this document is unclear as it is on the archive section of the Defra website).

The directive seeks to encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to “**prevent harmful effects on soil, vegetation, animals and man**”. To this end, it prohibits the use of untreated sludge on agricultural land unless it is injected or incorporated into the soil. Treated sludge is defined as having undergone "biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use". To provide protection against potential health risks from residual pathogens, sludge must not be applied to soil in which fruit and vegetable crops are growing, or less than ten months before fruit and vegetable crops are to be harvested. Grazing animals must not be allowed access to grassland or forage land less than three weeks after the application of sludge.

The specified limits of concentrations of selected elements in soil are presented in Table 4 of the updated 2<sup>nd</sup> Edition of the DoE Code of Practice and are designed to protect plant growth. It is noted that these values are more stringent than the values set in current UK regulations. However, since they were amended following recommendations from the Independent Scientific Committee in 1993. (MAFF/DOE 1993). The GAC are presented in Table 1.

**Table 1: Generic assessment criteria**

| Determinant                                                                                                                                                                                        | Generic assessment criteria (mg/kg) |              |              |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|--------------|---------|
|                                                                                                                                                                                                    | pH 5.0 < 5.5                        | pH 5.5 < 6.0 | pH 6.0 < 7.0 | pH >7.0 |
| Zinc                                                                                                                                                                                               | 200                                 | 200          | 200          | 300     |
| Copper                                                                                                                                                                                             | 80                                  | 100          | 135          | 200     |
| Nickel                                                                                                                                                                                             | 50                                  | 60           | 75           | 110     |
| Lead                                                                                                                                                                                               | 300                                 | 300          | 300          | 300     |
| Cadmium                                                                                                                                                                                            | 3                                   | 3            | 3            | 3       |
| Mercury                                                                                                                                                                                            | 1                                   | 1            | 1            | 1       |
| Note: Only compounds with assessment criteria documented within the Directive 86/278/EEC have been included, although criteria for 5 additional compounds have been presented within the 2006 CoP. |                                     |              |              |         |

## **APPENDIX K**

### **GENERIC ASSESSMENT CRITERIA POTABLE WATER SUPPLY PIPES**

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A range of pipe materials is available and careful selection, design and installation is required to ensure that water supply pipes are satisfactorily installed and meet the requirements of the Water Supply (Water Fittings) Regulations 1999 in England and Wales, the Byelaws 2000 in Scotland and the Northern Ireland Water Regulations. The regulations include a requirement to use only suitable materials when laying water pipes and laying water pipes without protection is not permitted at contaminated sites. The water supply company has a statutory duty to enforce the regulations.

Contaminants in the ground can pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or in specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies.

The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

The report concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for polyethylene (PE) and polyvinyl chloride (PVC) pipes for the organic contaminants of concern. The report also makes recommendations for the procedures to be adopted in the design of site investigations and sampling strategies, and the assessment of data, to ensure that the ground through which water supply pipes will be laid is adequately characterised.

Risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC for this linkage and are reproduced in Table A3 below.

Since water supply pipes are typically laid at a minimum depth of 0.75 m below finished ground levels, sample results from depths between 0.5 m and 1.5 m below finished level are generally considered suitable for assessing risks to water supply. Samples outside these depths can be used, providing the stratum is the same as that in which water supply pipes are likely to be located. The report specifies that sampling should characterise the ground conditions to a minimum of 0.5 m below the proposed depth of the pipe.

It should be noted that the assessment provided in this report is a guide and the method of assessment and recommendations should be checked with the relevant water supply company.

**Table K1: Generic assessment criteria for water supply pipes**

|                                                                                                                                                                     |                                                                                                                                                                               | Pipe material |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
|                                                                                                                                                                     |                                                                                                                                                                               | GAC (mg/kg)   |          |
|                                                                                                                                                                     | Parameter group                                                                                                                                                               | PE            | PVC      |
| 1                                                                                                                                                                   | Extended VOC suite by purge and trap or head space and GC-MS with TIC<br>(Not including compounds within group 1a)                                                            | 0.5           | 0.125    |
| 1a                                                                                                                                                                  | <ul style="list-style-type: none"> <li>BTEX + MTBE</li> </ul>                                                                                                                 | 0.1           | 0.03     |
| 2                                                                                                                                                                   | SVOCs TIC by purge and trap or head space and GC-MS with TIC<br>(aliphatic and aromatic C <sub>5</sub> –C <sub>10</sub> )<br>(Not including compounds within group 2e and 2f) | 2             | 1.4      |
| 2e                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Phenols</li> </ul>                                                                                                                     | 2             | 0.4      |
| 2f                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Cresols and chlorinated phenols</li> </ul>                                                                                             | 2             | 0.04     |
| 3                                                                                                                                                                   | Mineral oil C <sub>11</sub> –C <sub>20</sub>                                                                                                                                  | 10            | Suitable |
| 4                                                                                                                                                                   | Mineral oil C <sub>21</sub> –C <sub>40</sub>                                                                                                                                  | 500           | Suitable |
| 5                                                                                                                                                                   | Corrosive (conductivity, redox and pH)                                                                                                                                        | Suitable      | Suitable |
| Specific suite identified as relevant following site investigation                                                                                                  |                                                                                                                                                                               |               |          |
| 2a                                                                                                                                                                  | Ethers                                                                                                                                                                        | 0.5           | 1        |
| 2b                                                                                                                                                                  | Nitrobenzene                                                                                                                                                                  | 0.5           | 0.4      |
| 2c                                                                                                                                                                  | Ketones                                                                                                                                                                       | 0.5           | 0.02     |
| 2d                                                                                                                                                                  | Aldehydes                                                                                                                                                                     | 0.5           | 0.02     |
| 6                                                                                                                                                                   | Amines                                                                                                                                                                        | Not suitable  | Suitable |
| Notes: where indicated as 'suitable', the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR. |                                                                                                                                                                               |               |          |

## **APPENDIX L**

### **GQRA DATA SCREENING TABLES – SOILS**

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|              |                      |  |       |                                                                                     |
|--------------|----------------------|--|-------|-------------------------------------------------------------------------------------|
| Project name | Bunting Gardens      |  | Notes |  |
| Project code | 305258               |  |       |                                                                                     |
| Client name  |                      |  |       |                                                                                     |
| Address      |                      |  |       |                                                                                     |
|              |                      |  |       |                                                                                     |
| NGR          |                      |  |       |                                                                                     |
| Land use     | Phytotoxic (pH >7.0) |  |       |                                                                                     |
| SOM          | 1%                   |  |       |                                                                                     |
| GAC version  | 2012_01              |  |       |                                                                                     |

|                                           |       |        |    |       |       |       |           |               | Lab sample ID    | 22/06462/1 | 22/06462/1   | 22/06462/16          | 22/06462/16 | 22/06462/3 | 22/06462/4 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 |
|-------------------------------------------|-------|--------|----|-------|-------|-------|-----------|---------------|------------------|------------|--------------|----------------------|-------------|------------|------------|------------|------------|------------|------------|
|                                           |       |        |    |       |       |       |           |               | Client sample ID | TP1        | TP1          | TP2                  | TP2         | TP2a       | TP2a       | TP2a       | TP2a       | WS1        | WS1        |
|                                           |       |        |    |       |       |       |           |               | Depth to top     |            | 0.2          | 0.2                  | 0.3         | 0.3        | 0.2        | 0.3        | 0.2        | 0.3        | 1.2        |
|                                           |       |        |    |       |       |       |           |               | Depth to bottom  |            | 0.3          | 0.3                  | 0.4         | 0.4        | 0.3        | 0.4        | 0.3        | 0.4        | 1.3        |
|                                           |       |        |    |       |       |       |           |               | Date sampled     |            | 23/06/22     | 23/06/22             | 23/06/22    | 23/06/22   | 23/06/22   | 23/06/22   | 23/06/22   | 24/06/22   | 24/06/22   |
| Analyte                                   | Unit  | GAC    | T1 | Max   | Min   | Count | # Detects | # Non-detects |                  |            |              |                      |             |            |            |            |            |            |            |
| Metals and Inorganics                     |       |        |    |       |       |       |           |               |                  |            |              |                      |             |            |            |            |            |            |            |
| Arsenic                                   | mg/kg |        |    | 22    | 2     | 12    | 12        | 0             | 9                | 9          |              |                      |             | 5          |            | 5          |            | 4          | 2          |
| Cadmium                                   | mg/kg | 3      |    | 2     | 1     | 12    | 12        | 0             | 1.3              | 1.3        |              |                      |             | 1          |            | 1          |            | 1.2        | 1.2        |
| Chromium                                  | mg/kg |        |    | 54    | 27    | 12    | 12        | 0             | 29               | 29         |              |                      |             | 43         |            | 43         |            | 42         | 54         |
| Chromium (hexavalent)                     | mg/kg |        |    | <1    |       | 12    | 0         | 12            | <1               | <1         |              |                      | <1          |            | <1         |            | <1         | <1         |            |
| Copper                                    | mg/kg | 200    |    | 16    | 10    | 12    | 12        | 0             | 10               | 10         |              |                      |             | 12         |            | 12         |            | 12         | 16         |
| Lead                                      | mg/kg | 300    |    | 39    | 22    | 12    | 12        | 0             | 33               | 33         |              |                      |             | 22         |            | 22         |            | 29         | 39         |
| Mercury                                   | mg/kg | 1      |    | <0.17 |       | 12    | 0         | 12            | <0.17            | <0.17      |              |                      | <0.17       |            | <0.17      |            | <0.17      | <0.17      |            |
| Nickel                                    | mg/kg | 110    |    | 30    | 14    | 12    | 12        | 0             | 14               | 14         |              |                      |             | 25         |            | 25         |            | 26         | 30         |
| Selenium                                  | mg/kg |        |    | 5     | <1    | 12    | 6         | 6             | <1               | <1         |              |                      |             | 1          |            | 1          | <1         |            | 2          |
| Zinc                                      | mg/kg | 300    |    | 66    | 43    | 12    | 12        | 0             | 61               | 61         |              |                      |             | 49         |            | 49         |            | 44         | 43         |
| Asbestos                                  |       |        |    |       |       |       |           |               |                  |            |              |                      |             |            |            |            |            |            |            |
| Bulk Fibre Identification                 |       | Detect |    |       |       | 2     | 2         | 0             |                  |            | Amosite & Ch | Amosite & Chrysotile |             |            |            |            |            |            |            |
| Asbestos in soil                          |       |        |    |       |       | 6     | 0         | 6             |                  |            |              |                      | NAD         |            | NAD        |            | NAD        |            |            |
| Bulk Fibre Identification Matrix (visual) |       | Detect |    |       |       | 2     | 2         | 0             |                  |            | Board & Cem  | Board & Cement       |             |            |            |            |            |            |            |
| Bulk Fibre - % Asbestos in ACM (HSG264)   | % w/w | Detect |    |       |       | 1     | 1         | 0             |                  |            |              | 18.249               |             |            |            |            |            |            |            |
| Petroleum Hydrocarbons                    |       |        |    |       |       |       |           |               |                  |            |              |                      |             |            |            |            |            |            |            |
| Ali >C5-C6                                | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Ali >C6-C8                                | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Ali >C8-C10                               | mg/kg |        |    |       | <1    | 12    | 0         | 12            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Ali >C10-C12                              | mg/kg |        |    |       | <1    | 12    | 0         | 12            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Ali >C12-C16                              | mg/kg |        |    |       | <1    | 12    | 0         | 12            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Ali >C16-C21                              | mg/kg |        |    | 3     | <1    | 12    | 2         | 10            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Ali >C21-C35                              | mg/kg |        |    | 11    | <1    | 12    | 10        | 2             | 5                | 5          |              |                      |             | 6          |            | 6          |            | 11         | <1         |
| Ali >C16-C35 calculated                   | mg/kg |        |    | 14    | <1    | 12    | 10        | 2             | 5                | 5          |              |                      |             | 6          |            | 6          |            | 11         | <1         |
| Total Aliphatics                          | mg/kg |        |    | 14    | <1    | 12    | 10        | 2             | 5                | 5          |              |                      |             | 6          |            | 6          |            | 11         | <1         |
| Aro >C5-C7                                | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Aro >C7-C8                                | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Aro >C8-C10                               | mg/kg |        |    |       | <1    | 12    | 0         | 12            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Aro >C10-C12                              | mg/kg |        |    |       | <1    | 12    | 0         | 12            | <1               | <1         |              |                      |             | <1         |            | <1         |            | <1         | <1         |
| Aro >C12-C16                              | mg/kg |        |    | 1     | <1    | 12    | 6         | 6             | 1                | 1          |              |                      |             | 1          |            | 1          | <1         | <1         |            |
| Aro >C16-C21                              | mg/kg |        |    | 8     | <1    | 12    | 6         | 6             | 2                | 2          |              |                      |             | <1         |            | <1         |            | 3          | <1         |
| Aro >C21-C35                              | mg/kg |        |    | 11    | <1    | 12    | 8         | 4             | 8                | 8          |              |                      |             | 2          |            | 2          |            | 11         | <1         |
| Total Aromatics                           | mg/kg |        |    | 19    | <1    | 12    | 8         | 4             | 11               | 11         |              |                      |             | 3          |            | 3          |            | 13         | <1         |
| TPH (Ali & Aro)                           | mg/kg |        |    | 33    | <1    | 12    | 10        | 2             | 16               | 16         |              |                      |             | 10         |            | 10         |            | 24         | <1         |
| BTEX - Benzene                            | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - Toluene                            | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - Ethyl Benzene                      | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - o Xylene                           | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - m & p Xylene                       | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Fuel oxygenates                           |       |        |    |       |       |       |           |               |                  |            |              |                      |             |            |            |            |            |            |            |
| MTBE                                      | mg/kg |        |    |       | <0.01 | 12    | 0         | 12            | <0.01            | <0.01      |              |                      |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |

|              |                      |  |
|--------------|----------------------|--|
| Project name | Bunting Gardens      |  |
| Project code | 305258               |  |
| Client name  |                      |  |
| Address      |                      |  |
| NGR          |                      |  |
| Land use     | Phytotoxic (pH >7.0) |  |
| SOM          | 1%                   |  |
| GAC version  | 2012_01              |  |

|                                           |       |        |    |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
|-------------------------------------------|-------|--------|----|-----|-------|-------|-----------|------------|------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                           |       |        |    |     |       |       |           |            | Lab sample ID    | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/11 | 22/06462/14 | 22/06462/15 | 22/06462/14 | 22/06462/15 |
|                                           |       |        |    |     |       |       |           |            | Client sample ID | WS1        | WS1        | WS4         | WS4         | WS5         | WS5         | WS5         | WS5         |
|                                           |       |        |    |     |       |       |           |            | Depth to top     | 0.3        | 1.2        | 0.2         | 0.2         | 0.2         | 0.6         | 0.2         | 0.6         |
|                                           |       |        |    |     |       |       |           |            | Depth to bottom  | 0.4        | 1.3        | 0.3         | 0.3         | 0.3         |             | 0.3         |             |
|                                           |       |        |    |     |       |       |           |            | Date sampled     | 24/06/22   | 24/06/22   | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    |
| Analyte                                   | Unit  | GAC    | T1 | Max | Min   | Count | # Detects | # Non-dete |                  |            |            |             |             |             |             |             |             |
| Metals and Inorganics                     |       |        |    |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Arsenic                                   | mg/kg |        |    | 22  | 2     | 12    | 12        | 0          | 4                | 2          | 22         | 22          |             |             | 5           |             | 5           |
| Cadmium                                   | mg/kg | 3      |    | 2   | 1     | 12    | 12        | 0          | 1.2              | 1.2        | 2          | 2           |             |             | 1.4         |             | 1.4         |
| Chromium                                  | mg/kg |        |    | 54  | 27    | 12    | 12        | 0          | 42               | 54         | 47         | 47          |             |             | 27          |             | 27          |
| Chromium (hexavalent)                     | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Copper                                    | mg/kg | 200    |    | 16  | 10    | 12    | 12        | 0          | 12               | 16         | 13         | 13          |             |             | 13          |             | 13          |
| Lead                                      | mg/kg | 300    |    | 39  | 22    | 12    | 12        | 0          | 29               | 39         | 31         | 31          |             |             | 33          |             | 33          |
| Mercury                                   | mg/kg | 1      |    |     | <0.17 | 12    | 0         | 12         | <0.17            | <0.17      | <0.17      | <0.17       |             | <0.17       |             | <0.17       |             |
| Nickel                                    | mg/kg | 110    |    | 30  | 14    | 12    | 12        | 0          | 26               | 30         | 26         | 26          |             |             | 15          |             | 15          |
| Selenium                                  | mg/kg |        |    | 5   | <1    | 12    | 6         | 6          | <1               | 2          | 5          | 5           |             | <1          |             | <1          |             |
| Zinc                                      | mg/kg | 300    |    | 66  | 43    | 12    | 12        | 0          | 44               | 43         | 66         | 66          |             |             | 44          |             | 44          |
| Asbestos                                  |       |        |    |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Bulk Fibre Identification                 |       | Detect |    |     |       | 2     | 2         | 0          |                  |            |            |             |             |             |             |             |             |
| Asbestos in soil                          |       |        |    |     |       | 6     | 0         | 6          | NAD              |            |            |             | NAD         |             | NAD         |             |             |
| Bulk Fibre Identification Matrix (visual) |       | Detect |    |     |       | 2     | 2         | 0          |                  |            |            |             |             |             |             |             |             |
| Bulk Fibre - % Asbestos in ACM (HSG264)   | % w/w | Detect |    |     |       | 1     | 1         | 0          |                  |            |            |             |             |             |             |             |             |
| Petroleum Hydrocarbons                    |       |        |    |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Ali >C5-C6                                | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Ali >C6-C8                                | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Ali >C8-C10                               | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C10-C12                              | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C12-C16                              | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C16-C21                              | mg/kg |        |    | 3   | <1    | 12    | 2         | 10         | <1               | <1         | 3          | 3           |             | <1          |             | <1          |             |
| Ali >C21-C35                              | mg/kg |        |    | 11  | <1    | 12    | 10        | 2          | 11               | <1         | 11         | 11          |             | 1           |             | 1           |             |
| Ali >C16-C35 calculated                   | mg/kg |        |    | 14  | <1    | 12    | 10        | 2          | 11               | <1         | 14         | 14          |             | 1           |             | 1           |             |
| Total Aliphatics                          | mg/kg |        |    | 14  | <1    | 12    | 10        | 2          | 11               | <1         | 14         | 14          |             | 1           |             | 1           |             |
| Aro >C5-C7                                | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Aro >C7-C8                                | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Aro >C8-C10                               | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Aro >C10-C12                              | mg/kg |        |    |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Aro >C12-C16                              | mg/kg |        |    | 1   | <1    | 12    | 6         | 6          | <1               | <1         | 1          | 1           |             | <1          |             | <1          |             |
| Aro >C16-C21                              | mg/kg |        |    | 8   | <1    | 12    | 6         | 6          | 3                | <1         | 8          | 8           |             | <1          |             | <1          |             |
| Aro >C21-C35                              | mg/kg |        |    | 11  | <1    | 12    | 8         | 4          | 11               | <1         | 11         | 11          |             | <1          |             | <1          |             |
| Total Aromatics                           | mg/kg |        |    | 19  | <1    | 12    | 8         | 4          | 13               | <1         | 19         | 19          |             | <1          |             | <1          |             |
| TPH (Ali & Aro)                           | mg/kg |        |    | 33  | <1    | 12    | 10        | 2          | 24               | <1         | 33         | 33          |             | 1           |             | 1           |             |
| BTEX - Benzene                            | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - Toluene                            | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - Ethyl Benzene                      | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - o Xylene                           | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - m & p Xylene                       | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Fuel oxygenates                           |       |        |    |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| MTBE                                      | mg/kg |        |    |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |

|                                  |       |     |    |          |          |       |           |               | Lab sample ID    | 22/06462/1 | 22/06462/1 | 22/06462/16 | 22/06462/16 | 22/06462/3 | 22/06462/4 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 |
|----------------------------------|-------|-----|----|----------|----------|-------|-----------|---------------|------------------|------------|------------|-------------|-------------|------------|------------|------------|------------|------------|------------|
|                                  |       |     |    |          |          |       |           |               | Client sample ID | TP1        | TP1        | TP2         | TP2         | TP2a       | TP2a       | TP2a       | TP2a       | WS1        | WS1        |
|                                  |       |     |    |          |          |       |           |               | Depth to top     | 0.2        | 0.2        | 0.3         | 0.3         | 0.2        | 0.3        | 0.2        | 0.3        | 0.3        | 1.2        |
|                                  |       |     |    |          |          |       |           |               | Depth to bottom  | 0.3        | 0.3        | 0.4         | 0.4         | 0.3        | 0.4        | 0.3        | 0.4        | 0.4        | 1.3        |
|                                  |       |     |    |          |          |       |           |               | Date sampled     | 23/06/22   | 23/06/22   | 23/06/22    | 23/06/22    | 23/06/22   | 23/06/22   | 23/06/22   | 23/06/22   | 24/06/22   | 24/06/22   |
| Analyte                          | Unit  | GAC | T1 | Max      | Min      | Count | # Detects | # Non-detects |                  |            |            |             |             |            |            |            |            |            |            |
| Polycyclic aromatic hydrocarbons |       |     |    |          |          |       |           |               |                  |            |            |             |             |            |            |            |            |            |            |
| Acenaphthene                     | mg/kg |     |    | 0.11     | <0.01    | 12    | 2         | 10            | <0.01            | <0.01      |            |             |             | <0.01      |            | <0.01      |            | 0.11       | <0.01      |
| Acenaphthylene                   | mg/kg |     |    | 0.03     | <0.01    | 12    | 6         | 6             | 0.02             | 0.02       |            |             |             | <0.01      |            | <0.01      |            | 0.03       | <0.01      |
| Anthracene                       | mg/kg |     |    | 1.19     | <0.02    | 12    | 6         | 6             | 0.03             | 0.03       |            |             |             | <0.02      |            | <0.02      |            | 1.19       | <0.02      |
| Benzo(a)anthracene               | mg/kg |     |    | 1.69     | <0.04    | 12    | 6         | 6             | 0.14             | 0.14       |            |             |             | <0.04      |            | <0.04      |            | 1.69       | <0.04      |
| Benzo(a)pyrene                   | mg/kg |     |    | 1.06     | <0.04    | 12    | 6         | 6             | 0.15             | 0.15       |            |             |             | <0.04      |            | <0.04      |            | 1.06       | <0.04      |
| Benzo(b)fluoranthene             | mg/kg |     |    | 1.66     | <0.05    | 12    | 6         | 6             | 0.21             | 0.21       |            |             |             | <0.05      |            | <0.05      |            | 1.66       | <0.05      |
| Benzo(ghi)perylene               | mg/kg |     |    | 0.5      | <0.05    | 12    | 6         | 6             | 0.1              | 0.1        |            |             |             | <0.05      |            | <0.05      |            | 0.5        | <0.05      |
| Benzo(k)fluoranthene             | mg/kg |     |    | 0.63     | <0.07    | 12    | 6         | 6             | 0.09             | 0.09       |            |             |             | <0.07      |            | <0.07      |            | 0.63       | <0.07      |
| Chrysene                         | mg/kg |     |    | 1.61     | <0.06    | 12    | 6         | 6             | 0.16             | 0.16       |            |             |             | <0.06      |            | <0.06      |            | 1.61       | <0.06      |
| Dibenzo(ah)anthracene            | mg/kg |     |    |          | <0.04    | 12    | 0         | 12            | <0.04            | <0.04      |            |             |             | <0.04      |            | <0.04      |            | <0.04      | <0.04      |
| Fluoranthene                     | mg/kg |     |    | 5.07     | <0.08    | 12    | 6         | 6             | 0.27             | 0.27       |            |             |             | <0.08      |            | <0.08      |            | 5.07       | <0.08      |
| Fluorene                         | mg/kg |     |    | 0.11     | <0.01    | 12    | 2         | 10            | <0.01            | <0.01      |            |             |             | <0.01      |            | <0.01      |            | 0.11       | <0.01      |
| Indeno(123-cd)pyrene             | mg/kg |     |    | 0.66     | <0.03    | 12    | 6         | 6             | 0.11             | 0.11       |            |             |             | <0.03      |            | <0.03      |            | 0.66       | <0.03      |
| Naphthalene                      | mg/kg |     |    |          | <0.03    | 12    | 0         | 12            | <0.03            | <0.03      |            |             |             | <0.03      |            | <0.03      |            | <0.03      | <0.03      |
| Phenanthrene                     | mg/kg |     |    | 3.61     | <0.03    | 12    | 6         | 6             | 0.12             | 0.12       |            |             |             | <0.03      |            | <0.03      |            | 3.61       | <0.03      |
| Pyrene                           | mg/kg |     |    | 3.48     | <0.07    | 12    | 6         | 6             | 0.24             | 0.24       |            |             |             | <0.07      |            | <0.07      |            | 3.48       | <0.07      |
| Total PAH-16MS                   | mg/kg |     |    | 21.4     | <0.08    | 12    | 6         | 6             | 1.64             | 1.64       |            |             |             | <0.08      |            | <0.08      |            | 21.4       | <0.08      |
| Other analytes                   |       |     |    |          |          |       |           |               |                  |            |            |             |             |            |            |            |            |            |            |
| % Stones >10mm                   | % w/w |     |    |          | <0.1     | 14    | 0         | 14            | <0.1             | <0.1       |            |             |             | <0.1       | <0.1       | <0.1       | <0.1       | <0.1       | <0.1       |
| pH                               | pH    |     |    | 8.11     | 7.06     | 12    | 12        | 0             | 7.71             | 7.71       |            |             |             | 7.06       |            | 7.06       |            | 8.05       | 7.75       |
| Sulphate (acid soluble)          | mg/kg |     |    | 450      | 220      | 12    | 12        | 0             | 340              | 340        |            |             |             | 390        |            | 390        |            | 330        | 230        |
| Sulphate (water sol 2:1)         | g/l   |     |    |          | <0.01    | 12    | 0         | 12            | <0.01            | <0.01      |            |             |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Total Organic Carbon             | % w/w |     |    | 0.77     | 0.34     | 4     | 4         | 0             |                  |            |            |             |             |            | 0.34       |            | 0.34       | 0.77       |            |
| Converted to SOM (x / 0.58)      | % w/w |     |    | 1.327586 | 0.586207 | 4     | 4         | 0             |                  |            |            |             |             |            | 0.5862069  |            | 0.5862069  | 1.32758621 |            |

|                                  |       |     |    |          |          |       |           |            |            |            |             |             |             |             |             |             |
|----------------------------------|-------|-----|----|----------|----------|-------|-----------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Lab sample ID                    |       |     |    |          |          |       |           |            | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/11 | 22/06462/14 | 22/06462/15 | 22/06462/14 | 22/06462/15 |
| Client sample ID                 |       |     |    |          |          |       |           |            | WS1        | WS1        | WS4         | WS4         | WS5         | WS5         | WS5         | WS5         |
| Depth to top                     |       |     |    |          |          |       |           |            | 0.3        | 1.2        | 0.2         | 0.2         | 0.2         | 0.6         | 0.2         | 0.6         |
| Depth to bottom                  |       |     |    |          |          |       |           |            | 0.4        | 1.3        | 0.3         | 0.3         | 0.3         |             | 0.3         |             |
| Date sampled                     |       |     |    |          |          |       |           |            | 24/06/22   | 24/06/22   | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    |
| Analyte                          | Unit  | GAC | T1 | Max      | Min      | Count | # Detects | # Non-dete |            |            |             |             |             |             |             |             |
| Polycyclic aromatic hydrocarbons |       |     |    |          |          |       |           |            |            |            |             |             |             |             |             |             |
| Acenaphthene                     | mg/kg |     |    | 0.11     | <0.01    | 12    | 2         | 10         | 0.11       | <0.01      | <0.01       | <0.01       |             | <0.01       |             | <0.01       |
| Acenaphthylene                   | mg/kg |     |    | 0.03     | <0.01    | 12    | 6         | 6          | 0.03       | <0.01      |             | 0.02        |             | <0.01       |             | <0.01       |
| Anthracene                       | mg/kg |     |    | 1.19     | <0.02    | 12    | 6         | 6          | 1.19       | <0.02      |             | 0.03        |             | <0.02       |             | <0.02       |
| Benzo(a)anthracene               | mg/kg |     |    | 1.69     | <0.04    | 12    | 6         | 6          | 1.69       | <0.04      |             | 0.19        |             | <0.04       |             | <0.04       |
| Benzo(a)pyrene                   | mg/kg |     |    | 1.06     | <0.04    | 12    | 6         | 6          | 1.06       | <0.04      |             | 0.24        |             | <0.04       |             | <0.04       |
| Benzo(b)fluoranthene             | mg/kg |     |    | 1.66     | <0.05    | 12    | 6         | 6          | 1.66       | <0.05      |             | 0.32        |             | <0.05       |             | <0.05       |
| Benzo(ghi)perylene               | mg/kg |     |    | 0.5      | <0.05    | 12    | 6         | 6          | 0.5        | <0.05      |             | 0.16        |             | <0.05       |             | <0.05       |
| Benzo(k)fluoranthene             | mg/kg |     |    | 0.63     | <0.07    | 12    | 6         | 6          | 0.63       | <0.07      |             | 0.12        |             | <0.07       |             | <0.07       |
| Chrysene                         | mg/kg |     |    | 1.61     | <0.06    | 12    | 6         | 6          | 1.61       | <0.06      |             | 0.24        |             | <0.06       |             | <0.06       |
| Dibenzo(ah)anthracene            | mg/kg |     |    |          | <0.04    | 12    | 0         | 12         | <0.04      | <0.04      | <0.04       | <0.04       |             | <0.04       |             | <0.04       |
| Fluoranthene                     | mg/kg |     |    | 5.07     | <0.08    | 12    | 6         | 6          | 5.07       | <0.08      |             | 0.34        |             | <0.08       |             | <0.08       |
| Fluorene                         | mg/kg |     |    | 0.11     | <0.01    | 12    | 2         | 10         | 0.11       | <0.01      | <0.01       | <0.01       |             | <0.01       |             | <0.01       |
| Indeno(123-cd)pyrene             | mg/kg |     |    | 0.66     | <0.03    | 12    | 6         | 6          | 0.66       | <0.03      |             | 0.17        |             | <0.03       |             | <0.03       |
| Naphthalene                      | mg/kg |     |    |          | <0.03    | 12    | 0         | 12         | <0.03      | <0.03      | <0.03       | <0.03       |             | <0.03       |             | <0.03       |
| Phenanthrene                     | mg/kg |     |    | 3.61     | <0.03    | 12    | 6         | 6          | 3.61       | <0.03      |             | 0.1         |             | <0.03       |             | <0.03       |
| Pyrene                           | mg/kg |     |    | 3.48     | <0.07    | 12    | 6         | 6          | 3.48       | <0.07      |             | 0.31        |             | <0.07       |             | <0.07       |
| Total PAH-16MS                   | mg/kg |     |    | 21.4     | <0.08    | 12    | 6         | 6          | 21.4       | <0.08      |             | 2.24        |             | <0.08       |             | <0.08       |
| Other analytes                   |       |     |    |          |          |       |           |            |            |            |             |             |             |             |             |             |
| % Stones >10mm                   | % w/w |     |    |          | <0.1     | 14    | 0         | 14         | <0.1       | <0.1       | <0.1        | <0.1        |             | <0.1        |             | <0.1        |
| pH                               | pH    |     |    | 8.11     | 7.06     | 12    | 12        | 0          | 8.05       | 7.75       | 7.59        | 7.59        |             | 8.11        |             | 8.11        |
| Sulphate (acid soluble)          | mg/kg |     |    | 450      | 220      | 12    | 12        | 0          | 330        | 230        | 450         | 450         |             | 220         |             | 220         |
| Sulphate (water sol 2:1)         | g/l   |     |    |          | <0.01    | 12    | 0         | 12         | <0.01      | <0.01      | <0.01       | <0.01       |             | <0.01       |             | <0.01       |
| Total Organic Carbon             | % w/w |     |    | 0.77     | 0.34     | 4     | 4         | 0          | 0.77       |            |             |             |             |             |             |             |
| Converted to SOM (x / 0.58)      | % w/w |     |    | 1.327586 | 0.586207 | 4     | 4         | 0          | 1.32758621 |            |             |             |             |             |             |             |

|              |                                                          |       |                                                       |                                                                                     |
|--------------|----------------------------------------------------------|-------|-------------------------------------------------------|-------------------------------------------------------------------------------------|
| Project name | Bunting Gardens, Waterlooville                           | Notes | Imported material from Bunting Gardens Site - Phase 2 |  |
| Project code | 305258                                                   |       |                                                       |                                                                                     |
| Client name  | Portsmouth CC                                            |       |                                                       |                                                                                     |
| Address      | Bunting Gardens<br>Waterlooville<br>Hampshire<br>PO8 9UW |       |                                                       |                                                                                     |
| NGR          | SU 68608 11718                                           |       |                                                       |                                                                                     |
| Land use     | Residential with home-grown produce                      |       |                                                       |                                                                                     |
| SOM          | 1%                                                       |       |                                                       |                                                                                     |
| GAC version  | 2021_00                                                  |       |                                                       |                                                                                     |

|                                           |       |        |     |       |     |       |           |               | Lab sample ID    | 22/06462/1 | 22/06462/1 | 22/06462/16          | 22/06462/16          | 22/06462/3 | 22/06462/4 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 |
|-------------------------------------------|-------|--------|-----|-------|-----|-------|-----------|---------------|------------------|------------|------------|----------------------|----------------------|------------|------------|------------|------------|------------|------------|
|                                           |       |        |     |       |     |       |           |               | Client sample ID | TP1        | TP1        | TP2                  | TP2                  | TP2a       | TP2a       | TP2a       | TP2a       | WS1        | WS1        |
|                                           |       |        |     |       |     |       |           |               | Depth to top     | 0.2        | 0.2        | 0.3                  | 0.3                  | 0.2        | 0.3        | 0.2        | 0.3        | 0.3        | 1.2        |
|                                           |       |        |     |       |     |       |           |               | Depth to bottom  | 0.3        | 0.3        | 0.4                  | 0.4                  | 0.3        | 0.4        | 0.3        | 0.4        | 0.4        | 1.3        |
|                                           |       |        |     |       |     |       |           |               | Date sampled     | 23/06/22   | 23/06/22   | 23/06/22             | 23/06/22             | 23/06/22   | 23/06/22   | 23/06/22   | 23/06/22   | 24/06/22   | 24/06/22   |
| Analyte                                   | Unit  | GAC    | T1  | Max   | Min | Count | # Detects | # Non-detects |                  |            |            |                      |                      |            |            |            |            |            |            |
| Metals and Inorganics                     |       |        |     |       |     |       |           |               |                  |            |            |                      |                      |            |            |            |            |            |            |
| Arsenic                                   | mg/kg | 37     |     | 22    | 2   | 12    | 12        | 0             | 9                | 9          |            |                      |                      | 5          |            | 5          |            | 4          | 2          |
| Cadmium                                   | mg/kg | 22     |     | 2     | 1   | 12    | 12        | 0             | 1.3              | 1.3        |            |                      |                      | 1          |            | 1          |            | 1.2        | 1.2        |
| Chromium                                  | mg/kg | 910    | 21  | 54    | 27  | 12    | 12        | 0             | 29               | 29         |            |                      |                      | 43         |            | 43         |            | 42         | 54         |
| Chromium (hexavalent)                     | mg/kg | 21     |     | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      | <1                   |            | <1         |            | <1         | <1         |            |
| Copper                                    | mg/kg | 2500   |     | 16    | 10  | 12    | 12        | 0             | 10               | 10         |            |                      |                      | 12         |            | 12         |            | 12         | 16         |
| Lead                                      | mg/kg | 200    |     | 39    | 22  | 12    | 12        | 0             | 33               | 33         |            |                      |                      | 22         |            | 22         |            | 29         | 39         |
| Mercury                                   | mg/kg | 39     | 0.2 | <0.17 |     | 12    | 0         | 12            | <0.17            | <0.17      |            |                      | <0.17                |            | <0.17      |            | <0.17      | <0.17      |            |
| Nickel                                    | mg/kg | 130    |     | 30    | 14  | 12    | 12        | 0             | 14               | 14         |            |                      |                      | 25         |            | 25         |            | 26         | 30         |
| Selenium                                  | mg/kg | 258    |     | 5     | <1  | 12    | 6         | 6             | <1               | <1         |            |                      |                      | 1          |            | 1          | <1         |            | 2          |
| Zinc                                      | mg/kg | 3900   |     | 66    | 43  | 12    | 12        | 0             | 61               | 61         |            |                      |                      | 49         |            | 49         |            | 44         | 43         |
| Asbestos                                  |       |        |     |       |     |       |           |               |                  |            |            |                      |                      |            |            |            |            |            |            |
| Bulk Fibre Identification                 |       | Detect |     |       |     | 2     | 2         | 0             |                  |            |            | Amosite & Chrysotile | Amosite & Chrysotile |            |            |            |            |            |            |
| Asbestos in soil                          |       |        |     |       |     | 6     | 0         | 6             |                  |            |            |                      |                      | NAD        |            | NAD        |            | NAD        |            |
| Bulk Fibre Identification Matrix (visual) |       | Detect |     |       |     | 2     | 2         | 0             |                  |            |            | Board & Cement       | Board & Cement       |            |            |            |            |            |            |
| Bulk Fibre - % Asbestos in ACM (HSG264)   | % w/w | Detect |     |       |     | 1     | 1         | 0             |                  |            |            |                      | 18.249               |            |            |            |            |            |            |
| Petroleum Hydrocarbons                    |       |        |     |       |     |       |           |               |                  |            |            |                      |                      |            |            |            |            |            |            |
| Ali >C5-C6                                | mg/kg | 42     |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Ali >C6-C8                                | mg/kg | 100    |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Ali >C8-C10                               | mg/kg | 27     |     | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Ali >C10-C12                              | mg/kg | 130    | 48  | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Ali >C12-C16                              | mg/kg | 1100   | 24  | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Ali >C16-C21                              | mg/kg |        |     | 3     | <1  | 12    | 2         | 10            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Ali >C21-C35                              | mg/kg |        |     | 11    | <1  | 12    | 10        | 2             | 5                | 5          |            |                      |                      | 6          |            | 6          |            | 11         | <1         |
| Ali >C16-C35 calculated                   | mg/kg | 65000  | 8   | 14    | <1  | 12    | 10        | 2             | 5                | 5          |            |                      |                      | 6          |            | 6          |            | 11         | <1         |
| Total Aliphatics                          | mg/kg |        |     | 14    | <1  | 12    | 10        | 2             | 5                | 5          |            |                      |                      | 6          |            | 6          |            | 11         | <1         |
| Aro >C5-C7                                | mg/kg |        |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Aro >C7-C8                                | mg/kg |        |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Aro >C8-C10                               | mg/kg | 30     |     | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Aro >C10-C12                              | mg/kg | 80     |     | <1    |     | 12    | 0         | 12            | <1               | <1         |            |                      |                      | <1         |            | <1         |            | <1         | <1         |
| Aro >C12-C16                              | mg/kg | 140    |     | 1     | <1  | 12    | 6         | 6             | 1                | 1          |            |                      |                      | 1          |            | 1          | <1         | <1         | <1         |
| Aro >C16-C21                              | mg/kg | 260    |     | 8     | <1  | 12    | 6         | 6             | 2                | 2          |            |                      |                      | <1         |            | <1         |            | 3          | <1         |
| Aro >C21-C35                              | mg/kg | 1100   |     | 11    | <1  | 12    | 8         | 4             | 8                | 8          |            |                      |                      | 2          |            | 2          |            | 11         | <1         |
| Total Aromatics                           | mg/kg |        |     | 19    | <1  | 12    | 8         | 4             | 11               | 11         |            |                      |                      | 3          |            | 3          |            | 13         | <1         |
| TPH (Ali & Aro)                           | mg/kg |        |     | 33    | <1  | 12    | 10        | 2             | 16               | 16         |            |                      |                      | 10         |            | 10         |            | 24         | <1         |
| BTEX - Benzene                            | mg/kg | 0.2    |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - Toluene                            | mg/kg | 130    |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - Ethyl Benzene                      | mg/kg | 50     |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - o Xylene                           | mg/kg | 61     |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| BTEX - m & p Xylene                       | mg/kg | 57     |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Fuel oxygenates                           |       |        |     |       |     |       |           |               |                  |            |            |                      |                      |            |            |            |            |            |            |
| MTBE                                      | mg/kg | 60     |     | <0.01 |     | 12    | 0         | 12            | <0.01            | <0.01      |            |                      |                      | <0.01      |            | <0.01      |            | <0.01      | <0.01      |

|              |                                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------|----------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Project name | Bunting Gardens, Waterlooville                           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project code | 305258                                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Client name  | Portsmouth CC                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Address      | Bunting Gardens<br>Waterlooville<br>Hampshire<br>PO8 9UW |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NGR          | SU 68608 11718                                           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Land use     | Residential with home-grown produce                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SOM          | 1%                                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GAC version  | 2021_00                                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                                           |       |        |     |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
|-------------------------------------------|-------|--------|-----|-----|-------|-------|-----------|------------|------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                           |       |        |     |     |       |       |           |            | Lab sample ID    | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/11 | 22/06462/14 | 22/06462/15 | 22/06462/14 | 22/06462/15 |
|                                           |       |        |     |     |       |       |           |            | Client sample ID | WS1        | WS1        | WS4         | WS4         | WS5         | WS5         | WS5         | WS5         |
|                                           |       |        |     |     |       |       |           |            | Depth to top     | 0.3        | 1.2        | 0.2         | 0.2         | 0.2         | 0.6         | 0.2         | 0.6         |
|                                           |       |        |     |     |       |       |           |            | Depth to bottom  | 0.4        | 1.3        | 0.3         | 0.3         | 0.3         |             | 0.3         |             |
|                                           |       |        |     |     |       |       |           |            | Date sampled     | 24/06/22   | 24/06/22   | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    |
| Analyte                                   | Unit  | GAC    | T1  | Max | Min   | Count | # Detects | # Non-dete |                  |            |            |             |             |             |             |             |             |
| Metals and Inorganics                     |       |        |     |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Arsenic                                   | mg/kg | 37     |     | 22  | 2     | 12    | 12        | 0          | 4                | 2          | 22         | 22          |             |             | 5           |             | 5           |
| Cadmium                                   | mg/kg | 22     |     | 2   | 1     | 12    | 12        | 0          | 1.2              | 1.2        | 2          | 2           |             |             | 1.4         |             | 1.4         |
| Chromium                                  | mg/kg | 910    | 21  | 54  | 27    | 12    | 12        | 0          | 42               | 54         | 47         | 47          |             |             | 27          |             | 27          |
| Chromium (hexavalent)                     | mg/kg | 21     |     |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Copper                                    | mg/kg | 2500   |     | 16  | 10    | 12    | 12        | 0          | 12               | 16         | 13         | 13          |             |             | 13          |             | 13          |
| Lead                                      | mg/kg | 200    |     | 39  | 22    | 12    | 12        | 0          | 29               | 39         | 31         | 31          |             |             | 33          |             | 33          |
| Mercury                                   | mg/kg | 39     | 0.2 |     | <0.17 | 12    | 0         | 12         | <0.17            | <0.17      | <0.17      | <0.17       |             | <0.17       |             | <0.17       |             |
| Nickel                                    | mg/kg | 130    |     | 30  | 14    | 12    | 12        | 0          | 26               | 30         | 26         | 26          |             |             | 15          |             | 15          |
| Selenium                                  | mg/kg | 258    |     | 5   | <1    | 12    | 6         | 6          | <1               | 2          | 5          | 5           |             | <1          |             | <1          |             |
| Zinc                                      | mg/kg | 3900   |     | 66  | 43    | 12    | 12        | 0          | 44               | 43         | 66         | 66          |             |             | 44          |             | 44          |
| Asbestos                                  |       |        |     |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Bulk Fibre Identification                 |       | Detect |     |     |       | 2     | 2         | 0          |                  |            |            |             |             |             |             |             |             |
| Asbestos in soil                          |       |        |     |     |       | 6     | 0         | 6          | NAD              |            |            |             |             | NAD         |             | NAD         |             |
| Bulk Fibre Identification Matrix (visual) |       | Detect |     |     |       | 2     | 2         | 0          |                  |            |            |             |             |             |             |             |             |
| Bulk Fibre - % Asbestos in ACM (HSG264)   | % w/w | Detect |     |     |       | 1     | 1         | 0          |                  |            |            |             |             |             |             |             |             |
| Petroleum Hydrocarbons                    |       |        |     |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| Ali >C5-C6                                | mg/kg | 42     |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Ali >C6-C8                                | mg/kg | 100    |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Ali >C8-C10                               | mg/kg | 27     |     |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C10-C12                              | mg/kg | 130    | 48  |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C12-C16                              | mg/kg | 1100   | 24  |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Ali >C16-C21                              | mg/kg |        |     | 3   | <1    | 12    | 2         | 10         | <1               | <1         | 3          | 3           |             | <1          |             | <1          |             |
| Ali >C21-C35                              | mg/kg |        |     | 11  | <1    | 12    | 10        | 2          | 11               | <1         | 11         | 11          |             |             | 1           |             | 1           |
| Ali >C16-C35 calculated                   | mg/kg | 65000  | 8   | 14  | <1    | 12    | 10        | 2          | 11               | <1         | 14         | 14          |             |             | 1           |             | 1           |
| Total Aliphatics                          | mg/kg |        |     | 14  | <1    | 12    | 10        | 2          | 11               | <1         | 14         | 14          |             |             | 1           |             | 1           |
| Aro >C5-C7                                | mg/kg |        |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Aro >C7-C8                                | mg/kg |        |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Aro >C8-C10                               | mg/kg | 30     |     |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Aro >C10-C12                              | mg/kg | 80     |     |     | <1    | 12    | 0         | 12         | <1               | <1         | <1         | <1          |             | <1          |             | <1          |             |
| Aro >C12-C16                              | mg/kg | 140    |     | 1   | <1    | 12    | 6         | 6          | <1               | <1         | 1          | 1           |             | <1          |             | <1          |             |
| Aro >C16-C21                              | mg/kg | 260    |     | 8   | <1    | 12    | 6         | 6          | 3                | <1         | 8          | 8           |             | <1          |             | <1          |             |
| Aro >C21-C35                              | mg/kg | 1100   |     | 11  | <1    | 12    | 8         | 4          | 11               | <1         | 11         | 11          |             | <1          |             | <1          |             |
| Total Aromatics                           | mg/kg |        |     | 19  | <1    | 12    | 8         | 4          | 13               | <1         | 19         | 19          |             | <1          |             | <1          |             |
| TPH (Ali & Aro)                           | mg/kg |        |     | 33  | <1    | 12    | 10        | 2          | 24               | <1         | 33         | 33          |             |             | 1           |             | 1           |
| BTEX - Benzene                            | mg/kg | 0.2    |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - Toluene                            | mg/kg | 130    |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - Ethyl Benzene                      | mg/kg | 50     |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - o Xylene                           | mg/kg | 61     |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| BTEX - m & p Xylene                       | mg/kg | 57     |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |
| Fuel oxygenates                           |       |        |     |     |       |       |           |            |                  |            |            |             |             |             |             |             |             |
| MTBE                                      | mg/kg | 60     |     |     | <0.01 | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             | <0.01       |             | <0.01       |             |

| Lab sample ID                    |       |      |    |          |          |       |           |               |       | 22/06462/1 | 22/06462/1 | 22/06462/16 | 22/06462/16 | 22/06462/3 | 22/06462/4 | 22/06462/3 | 22/06462/4 | 22/06462/6 | 22/06462/7 |
|----------------------------------|-------|------|----|----------|----------|-------|-----------|---------------|-------|------------|------------|-------------|-------------|------------|------------|------------|------------|------------|------------|
| Client sample ID                 |       |      |    |          |          |       |           |               |       | TP1        | TP1        | TP2         | TP2         | TP2a       | TP2a       | TP2a       | TP2a       | WS1        | WS1        |
| Depth to top                     |       |      |    |          |          |       |           |               |       | 0.2        | 0.2        | 0.3         | 0.3         | 0.2        | 0.3        | 0.2        | 0.3        | 0.3        | 1.2        |
| Depth to bottom                  |       |      |    |          |          |       |           |               |       | 0.3        | 0.3        | 0.4         | 0.4         | 0.3        | 0.4        | 0.3        | 0.4        | 0.4        | 1.3        |
| Date sampled                     |       |      |    |          |          |       |           |               |       | 23/06/22   | 23/06/22   | 23/06/22    | 23/06/22    | 23/06/22   | 23/06/22   | 23/06/22   | 23/06/22   | 24/06/22   | 24/06/22   |
| Analyte                          | Unit  | GAC  | T1 | Max      | Min      | Count | # Detects | # Non-detects |       |            |            |             |             |            |            |            |            |            |            |
| Polycyclic aromatic hydrocarbons |       |      |    |          |          |       |           |               |       |            |            |             |             |            |            |            |            |            |            |
| Acenaphthene                     | mg/kg | 230  |    | 0.11     | <0.01    | 12    | 2         | 10            | <0.01 | <0.01      |            |             |             | <0.01      |            | <0.01      |            | 0.11       | <0.01      |
| Acenaphthylene                   | mg/kg | 180  |    | 0.03     | <0.01    | 12    | 6         | 6             | 0.02  | 0.02       |            |             |             | <0.01      |            | <0.01      |            | 0.03       | <0.01      |
| Anthracene                       | mg/kg | 2400 |    | 1.19     | <0.02    | 12    | 6         | 6             | 0.03  | 0.03       |            |             |             | <0.02      |            | <0.02      |            | 1.19       | <0.02      |
| Benzo(a)anthracene               | mg/kg | 7    |    | 1.69     | <0.04    | 12    | 6         | 6             | 0.14  | 0.14       |            |             |             | <0.04      |            | <0.04      |            | 1.69       | <0.04      |
| Benzo(a)pyrene                   | mg/kg | 5    |    | 1.06     | <0.04    | 12    | 6         | 6             | 0.15  | 0.15       |            |             |             | <0.04      |            | <0.04      |            | 1.06       | <0.04      |
| Benzo(b)fluoranthene             | mg/kg | 2.6  |    | 1.66     | <0.05    | 12    | 6         | 6             | 0.21  | 0.21       |            |             |             | <0.05      |            | <0.05      |            | 1.66       | <0.05      |
| Benzo(ghi)perylene               | mg/kg | 310  |    | 0.5      | <0.05    | 12    | 6         | 6             | 0.1   | 0.1        |            |             |             | <0.05      |            | <0.05      |            | 0.5        | <0.05      |
| Benzo(k)fluoranthene             | mg/kg | 77   |    | 0.63     | <0.07    | 12    | 6         | 6             | 0.09  | 0.09       |            |             |             | <0.07      |            | <0.07      |            | 0.63       | <0.07      |
| Chrysene                         | mg/kg | 15   |    | 1.61     | <0.06    | 12    | 6         | 6             | 0.16  | 0.16       |            |             |             | <0.06      |            | <0.06      |            | 1.61       | <0.06      |
| Dibenzo(ah)anthracene            | mg/kg | 0.24 |    |          | <0.04    | 12    | 0         | 12            | <0.04 | <0.04      |            |             |             | <0.04      |            | <0.04      |            | <0.04      | <0.04      |
| Fluoranthene                     | mg/kg | 290  |    | 5.07     | <0.08    | 12    | 6         | 6             | 0.27  | 0.27       |            |             |             | <0.08      |            | <0.08      |            | 5.07       | <0.08      |
| Fluorene                         | mg/kg | 170  |    | 0.11     | <0.01    | 12    | 2         | 10            | <0.01 | <0.01      |            |             |             | <0.01      |            | <0.01      |            | 0.11       | <0.01      |
| Indeno(123-cd)pyrene             | mg/kg | 27   |    | 0.66     | <0.03    | 12    | 6         | 6             | 0.11  | 0.11       |            |             |             | <0.03      |            | <0.03      |            | 0.66       | <0.03      |
| Naphthalene                      | mg/kg | 13   |    |          | <0.03    | 12    | 0         | 12            | <0.03 | <0.03      |            |             |             | <0.03      |            | <0.03      |            | <0.03      | <0.03      |
| Phenanthrene                     | mg/kg | 100  |    | 3.61     | <0.03    | 12    | 6         | 6             | 0.12  | 0.12       |            |             |             | <0.03      |            | <0.03      |            | 3.61       | <0.03      |
| Pyrene                           | mg/kg | 620  |    | 3.48     | <0.07    | 12    | 6         | 6             | 0.24  | 0.24       |            |             |             | <0.07      |            | <0.07      |            | 3.48       | <0.07      |
| Total PAH-16MS                   | mg/kg |      |    | 21.4     | <0.08    | 12    | 6         | 6             | 1.64  | 1.64       |            |             |             | <0.08      |            | <0.08      |            | 21.4       | <0.08      |
| Other analytes                   |       |      |    |          |          |       |           |               |       |            |            |             |             |            |            |            |            |            |            |
| % Stones >10mm                   | % w/w |      |    |          | <0.1     | 14    | 0         | 14            | <0.1  | <0.1       |            |             |             | <0.1       | <0.1       | <0.1       | <0.1       | <0.1       | <0.1       |
| pH                               | pH    |      |    | 8.11     | 7.06     | 12    | 12        | 0             | 7.71  | 7.71       |            |             |             | 7.06       |            | 7.06       |            | 8.05       | 7.75       |
| Sulphate (acid soluble)          | mg/kg |      |    | 450      | 220      | 12    | 12        | 0             | 340   | 340        |            |             |             | 390        |            | 390        |            | 330        | 230        |
| Sulphate (water sol 2:1)         | g/l   |      |    |          | <0.01    | 12    | 0         | 12            | <0.01 | <0.01      |            |             |             | <0.01      |            | <0.01      |            | <0.01      | <0.01      |
| Total Organic Carbon             | % w/w |      |    | 0.77     | 0.34     | 4     | 4         | 0             |       |            |            |             |             |            | 0.34       |            | 0.34       | 0.77       |            |
| Converted to SOM (x / 0.58)      | % w/w |      |    | 1.327586 | 0.586207 | 4     | 4         | 0             |       |            |            |             |             |            | 0.5862069  |            | 0.5862069  | 1.32758621 |            |

|                                  |       |      |    |          |          |       |           |            | Lab sample ID    | 22/06462/6 | 22/06462/7 | 22/06462/11 | 22/06462/11 | 22/06462/14 | 22/06462/15 | 22/06462/14 | 22/06462/15 |
|----------------------------------|-------|------|----|----------|----------|-------|-----------|------------|------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                  |       |      |    |          |          |       |           |            | Client sample ID | WS1        | WS1        | WS4         | WS4         | WS5         | WS5         | WS5         | WS5         |
|                                  |       |      |    |          |          |       |           |            | Depth to top     | 0.3        | 1.2        | 0.2         | 0.2         | 0.2         | 0.6         | 0.2         | 0.6         |
|                                  |       |      |    |          |          |       |           |            | Depth to bottom  | 0.4        | 1.3        | 0.3         | 0.3         | 0.3         |             | 0.3         |             |
|                                  |       |      |    |          |          |       |           |            | Date sampled     | 24/06/22   | 24/06/22   | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    | 24/06/22    |
| Analyte                          | Unit  | GAC  | T1 | Max      | Min      | Count | # Detects | # Non-dete |                  |            |            |             |             |             |             |             |             |
| Polycyclic aromatic hydrocarbons |       |      |    |          |          |       |           |            |                  |            |            |             |             |             |             |             |             |
| Acenaphthene                     | mg/kg | 230  |    | 0.11     | <0.01    | 12    | 2         | 10         | 0.11             | <0.01      | <0.01      | <0.01       |             |             | <0.01       |             | <0.01       |
| Acenaphthylene                   | mg/kg | 180  |    | 0.03     | <0.01    | 12    | 6         | 6          | 0.03             | <0.01      |            | 0.02        | 0.02        |             | <0.01       |             | <0.01       |
| Anthracene                       | mg/kg | 2400 |    | 1.19     | <0.02    | 12    | 6         | 6          | 1.19             | <0.02      |            | 0.03        | 0.03        |             | <0.02       |             | <0.02       |
| Benzo(a)anthracene               | mg/kg | 7    |    | 1.69     | <0.04    | 12    | 6         | 6          | 1.69             | <0.04      |            | 0.19        | 0.19        |             | <0.04       |             | <0.04       |
| Benzo(a)pyrene                   | mg/kg | 5    |    | 1.06     | <0.04    | 12    | 6         | 6          | 1.06             | <0.04      |            | 0.24        | 0.24        |             | <0.04       |             | <0.04       |
| Benzo(b)fluoranthene             | mg/kg | 2.6  |    | 1.66     | <0.05    | 12    | 6         | 6          | 1.66             | <0.05      |            | 0.32        | 0.32        |             | <0.05       |             | <0.05       |
| Benzo(ghi)perylene               | mg/kg | 310  |    | 0.5      | <0.05    | 12    | 6         | 6          | 0.5              | <0.05      |            | 0.16        | 0.16        |             | <0.05       |             | <0.05       |
| Benzo(k)fluoranthene             | mg/kg | 77   |    | 0.63     | <0.07    | 12    | 6         | 6          | 0.63             | <0.07      |            | 0.12        | 0.12        |             | <0.07       |             | <0.07       |
| Chrysene                         | mg/kg | 15   |    | 1.61     | <0.06    | 12    | 6         | 6          | 1.61             | <0.06      |            | 0.24        | 0.24        |             | <0.06       |             | <0.06       |
| Dibenzo(ah)anthracene            | mg/kg | 0.24 |    |          | <0.04    | 12    | 0         | 12         | <0.04            | <0.04      | <0.04      | <0.04       |             |             | <0.04       |             | <0.04       |
| Fluoranthene                     | mg/kg | 290  |    | 5.07     | <0.08    | 12    | 6         | 6          | 5.07             | <0.08      |            | 0.34        | 0.34        |             | <0.08       |             | <0.08       |
| Fluorene                         | mg/kg | 170  |    | 0.11     | <0.01    | 12    | 2         | 10         | 0.11             | <0.01      | <0.01      | <0.01       |             |             | <0.01       |             | <0.01       |
| Indeno(123-cd)pyrene             | mg/kg | 27   |    | 0.66     | <0.03    | 12    | 6         | 6          | 0.66             | <0.03      |            | 0.17        | 0.17        |             | <0.03       |             | <0.03       |
| Naphthalene                      | mg/kg | 13   |    |          | <0.03    | 12    | 0         | 12         | <0.03            | <0.03      | <0.03      | <0.03       |             |             | <0.03       |             | <0.03       |
| Phenanthrene                     | mg/kg | 100  |    | 3.61     | <0.03    | 12    | 6         | 6          | 3.61             | <0.03      |            | 0.1         | 0.1         |             | <0.03       |             | <0.03       |
| Pyrene                           | mg/kg | 620  |    | 3.48     | <0.07    | 12    | 6         | 6          | 3.48             | <0.07      |            | 0.31        | 0.31        |             | <0.07       |             | <0.07       |
| Total PAH-16MS                   | mg/kg |      |    | 21.4     | <0.08    | 12    | 6         | 6          | 21.4             | <0.08      |            | 2.24        | 2.24        |             | <0.08       |             | <0.08       |
| Other analytes                   |       |      |    |          |          |       |           |            |                  |            |            |             |             |             |             |             |             |
| % Stones >10mm                   | % w/w |      |    |          | <0.1     | 14    | 0         | 14         | <0.1             | <0.1       | <0.1       | <0.1        |             |             | <0.1        |             | <0.1        |
| pH                               | pH    |      |    | 8.11     | 7.06     | 12    | 12        | 0          | 8.05             | 7.75       | 7.59       | 7.59        |             |             | 8.11        |             | 8.11        |
| Sulphate (acid soluble)          | mg/kg |      |    | 450      | 220      | 12    | 12        | 0          | 330              | 230        | 450        | 450         |             |             | 220         |             | 220         |
| Sulphate (water sol 2:1)         | g/l   |      |    |          | <0.01    | 12    | 0         | 12         | <0.01            | <0.01      | <0.01      | <0.01       |             |             | <0.01       |             | <0.01       |
| Total Organic Carbon             | % w/w |      |    | 0.77     | 0.34     | 4     | 4         | 0          | 0.77             |            |            |             |             |             |             |             |             |
| Converted to SOM (x / 0.58)      | % w/w |      |    | 1.327586 | 0.586207 | 4     | 4         | 0          | 1.32758621       |            |            |             |             |             |             |             |             |

|                  |           |           |           |
|------------------|-----------|-----------|-----------|
| Project ref      | 305258    | 305258    | 305258    |
| Lab sample id    | 22/06462/ | 22/06462/ | 22/06462/ |
| Client sample id | TP1       | TP1       | TP2       |
| Depth to top     | 0.2       | 0.2       | 0.3       |
| Depth to bottom  | 0.3       | 0.3       | 0.4       |
| Date sampled     | #####     | #####     | #####     |

|            |                             |          |
|------------|-----------------------------|----------|
| Analyte id | Analyte name                | Average  |
| 711        | Total Organic Carbon        | 0.555    |
|            | Converted to SOM (x / 0.58) | 0.956897 |

|           |           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 305258    | 305258    | 305258    | 305258    | 305258    | 305258    | 305258    | 305258    | 305258    |
| 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ | 22/06462/ |
| TP2       | TP2a      | TP2a      | TP2a      | TP2a      | WS1       | WS1       | WS1       | WS1       |
| 0.3       | 0.2       | 0.3       | 0.2       | 0.3       | 0.3       | 1.2       | 0.3       | 1.2       |
| 0.4       | 0.3       | 0.4       | 0.3       | 0.4       | 0.4       | 1.3       | 0.4       | 1.3       |
| #####     | #####     | #####     | #####     | #####     | #####     | #####     | #####     | #####     |

|          |          |          |          |
|----------|----------|----------|----------|
| 0.34     | 0.34     | 0.77     | 0.77     |
| 0.586207 | 0.586207 | 1.327586 | 1.327586 |

|                                                               |        |        |        |        |        |
|---------------------------------------------------------------|--------|--------|--------|--------|--------|
| 305258                                                        | 305258 | 305258 | 305258 | 305258 | 305258 |
| 22/06462/:22/06462/:22/06462/:22/06462/:22/06462/:22/06462/15 |        |        |        |        |        |
| WS4                                                           | WS4    | WS5    | WS5    | WS5    | WS5    |
| 0.2                                                           | 0.2    | 0.2    | 0.6    | 0.2    | 0.6    |
| 0.3                                                           | 0.3    | 0.3    |        | 0.3    |        |
| #####                                                         | #####  | #####  | #####  | #####  | #####  |

## **APPENDIX M**

### **WM3 ASSESSMENT**

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Please enter available data in the rows associated with the following categories.  
If any calculation cells below state "0.0", please enter "0.0" in the corresponding cell.

Table 3 of the CLP, CL Inventory, ATPs, IARC, Concawe, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDS's used for \*\*\* STOT + Acute Toxicity.



Please enter available data in the rows associated with the following categories.  
If any calculation cells below state "0.0", please enter "0.000000".

Table 3 of the CLP, CL inventory, ATPs, IARC, Concasse, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDSs used for \*\*\* STOT + Acute Toxicity



Hawaste, developed by Dr. Iain Haslock.

listed with the test (grey) cells. Calculation cells initially display either "0.0000" or "ND/IV/0".  
 00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "ND/IV/0".  
 If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Please enter available data in  
 If any calculation cells

11505-CTR

Ref. 1

Ref. 2

Date

|                  |       |
|------------------|-------|
| % Moisture       | %     |
| pH (soil)        |       |
| pH (leachate)    |       |
| Arsenic          | mg/kg |
| Cadmium          | mg/kg |
| Copper           | mg/kg |
| CrVI or Chromium | mg/kg |
| Lead             | mg/kg |
| Mercury          | mg/kg |
| Nickel           | mg/kg |
| Selenium         | mg/kg |
| Zinc             | mg/kg |
| Barium           | mg/kg |
| Beryllium        | mg/kg |
| Vanadium         | mg/kg |
| Cobalt           | mg/kg |
| Manganese        | mg/kg |
| Molybdenum       | mg/kg |
| Antimony         | mg/kg |
| Aluminium        | mg/kg |
| Bismuth          | mg/kg |
| Chlorine         | mg/kg |
| Iron             | mg/kg |
| Srondium         | mg/kg |
| Tellurium        | mg/kg |
| Thallium         | mg/kg |
| Titanium         | mg/kg |
| Tungsten         | mg/kg |
| Unidentified N   | mg/kg |
| Unidentified B   | mg/kg |

PAH (Input Total PAH OR individual PAH results)

|                        |       |
|------------------------|-------|
| Acenaphthylene         | mg/kg |
| Acenaphthylene         | mg/kg |
| Anthracene             | mg/kg |
| Benzo(a)anthracene     | mg/kg |
| Benzo(a)pyrene         | mg/kg |
| Benzo(b)fluoranthene   | mg/kg |
| Benzo(g,h,i)perylene   | mg/kg |
| Benzo(k)fluoranthene   | mg/kg |
| Chrysene               | mg/kg |
| Dibenz(a,h)anthracene  | mg/kg |
| Fluorene               | mg/kg |
| Indeno(1,2,3-cd)pyrene | mg/kg |
| Naphthalene            | mg/kg |
| Phenanthrene           | mg/kg |
| Pyrene                 | mg/kg |
| Coronene               | mg/kg |
| Total PAHs (16 or 17)  | mg/kg |

TPH

|                                                                 |       |
|-----------------------------------------------------------------|-------|
| Petrol                                                          | mg/kg |
| Diesel                                                          | mg/kg |
| Lubric Oil                                                      | mg/kg |
| Crude Oil                                                       | mg/kg |
| White Spirit / Kerosene                                         | mg/kg |
| Creosote                                                        | mg/kg |
| Unknown TPH with ID                                             | mg/kg |
| Unknown TPHCWS                                                  | mg/kg |
| Total Soluble                                                   | mg/kg |
| Complexes Crude                                                 | mg/kg |
| Free (or Total) Crude                                           | mg/kg |
| Thiophene                                                       | mg/kg |
| Benzo(a)Fluoranthene                                            | mg/kg |
| Phenols Input (Total Phenols HPLC OR individual Phenol results) | mg/kg |

|                       |       |
|-----------------------|-------|
| Phenol                | mg/kg |
| Cresols               | mg/kg |
| Xylenols              | mg/kg |
| Benzonitrile          | mg/kg |
| Phenols Total by HPLC | mg/kg |

BTEX (Input Total BTEX OR individual BTEX results)

|              |       |
|--------------|-------|
| Benzene      | mg/kg |
| Toluene      | mg/kg |
| Ethylbenzene | mg/kg |
| Xylenes      | mg/kg |
| Total BTEX   | mg/kg |

PCBs (PCPs)

|                           |       |
|---------------------------|-------|
| PCBs Total (as ECF/WHO12) | mg/kg |
| PCBs (PCPs)               | mg/kg |

PBAs (PBAs)

(Hexachlorobiphenyl) (Total or PB153, 2,2,4,4',5,5'- if only

labelling)

POPs: Dioxins and Furans Input Total Dioxins and Furans

OR individual Dioxin and Furans results.

|                          |       |
|--------------------------|-------|
| 2,3,7,8-TCDD             | mg/kg |
| 1,2,3,7,8-PeCDD          | mg/kg |
| 1,2,3,4,7,8-HxCDD        | mg/kg |
| 1,2,3,6,7,8-HxCDD        | mg/kg |
| 1,2,3,7,8,9-HxCDD        | mg/kg |
| 1,2,3,4,6,7,8-HpCDD      | mg/kg |
| OCDD                     | mg/kg |
| 2,3,7,8-TCDF             | mg/kg |
| 1,2,3,7,8-PeCDF          | mg/kg |
| 2,3,4,7,8-PeCDF          | mg/kg |
| 1,2,3,4,7,8-HxCDF        | mg/kg |
| 1,2,3,6,7,8-HxCDF        | mg/kg |
| 2,3,4,6,7,8-HxCDF        | mg/kg |
| 1,2,3,7,8,9-HxCDF        | mg/kg |
| 1,2,3,4,6,7,8-HpCDF      | mg/kg |
| 1,2,3,4,7,8,9-HpCDF      | mg/kg |
| OCDF                     | mg/kg |
| Total Dioxins and Furans | mg/kg |

Some Pesticides (POPs unless otherwise stated)

|                                                                             |       |
|-----------------------------------------------------------------------------|-------|
| Aldrin                                                                      | mg/kg |
| α-Hexachlorocyclohexane (alpha-HCH) (leave empty if total HCH results used) | mg/kg |
| β-Hexachlorocyclohexane (beta-HCH) (leave empty if total HCH results used)  | mg/kg |
| γ-Hexachlorocyclohexane (gamma-HCH) (leave empty if total HCH results used) | mg/kg |
| γ-Hexachlorocyclohexane (delta-HCH) (leave empty if total HCH results used) | mg/kg |
| Dieldrin                                                                    | mg/kg |
| Endrin                                                                      | mg/kg |
| γ-Hexachlorocyclohexane (gamma-HCH) (indane) OR Total HCH                   | mg/kg |
| Heptachlor                                                                  | mg/kg |
| Heptachlorobenzene                                                          | mg/kg |
| α,β-DDT (leave empty if total DDT results used)                             | mg/kg |
| γ,γ-DDT OR Total DDT                                                        | mg/kg |
| γ-Trans-Chlordane (gamma) (leave empty if total Chlordane results used)     | mg/kg |
| Chlordane (isomer)                                                          | mg/kg |
| Pentachlorobenzene                                                          | mg/kg |
| Mirex                                                                       | mg/kg |
| Dibutyltin (cannaphenyl)                                                    | mg/kg |

Tin

(leave empty if Organotin and Tin exist Organotin results used)

Organotin

Dibutyltin: DBT

Tributyltin: TBT

Triphenyltin: TriPT

Tetraethyltin: TetT

Tin excluding Organotin

Tin exist Organotin

Asbestos in Soil

(Asbestos identified in Soil (enter Y or N))

Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)

Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces)

Please be advised, if the saturation test is "0.0000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.

Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)

Asbestos % results and the whole soil sample in Hazardous Waste HPS and HP7 Construction material containing Asbestos 17 05 05.

If Asbestos in Soil above is "Y", the Asbestos % above is "0.1%", the soil is Hazardous Waste.

If Asbestos in Soil above is "Y", the Asbestos % above is "0.1%", the soil is Hazardous Waste.

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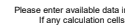
If Asbestos in Soil above is "Y", the Asbestos % above is "0.1%", the soil is Hazardous Waste.

If Asbestos in Soil above is "Y", the Asbestos % above is "0.1%", the soil is Hazardous Waste.

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|           |
|-----------|
| 11505-CTR |
| Ref. 1    |
| Ref. 2    |
| Date      |

[illegible]

All visual asbestos pieces need to

Table 3 of the CLP, CL Inventory, ATPs, IARC, Concave, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDSs used for \*\*\* STOT + Acute Toxicity.