

## Document Verification

|                                                                                                                                                                           |                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Project Title</b>                                                                                                                                                      | "Maes y Rhedyn", Gresford Road, Llay                             |
| <b>Project Number</b>                                                                                                                                                     | 6697                                                             |
| <b>Document Title</b>                                                                                                                                                     | Validation Report For Placement of Inert Cover For Plots 231-237 |
| <b>Document Number</b>                                                                                                                                                    | 6697val_Plots 231-237                                            |
| This document is not to be used for contractual or engineering purposes unless the document verification sheet is signed where indicated by the approver of the document. |                                                                  |

Prepared by,

Checked and Approved by



**M A Wall**  
*BSc (Hons), MEnvSc, FGS*



**J A Lewis**  
*BSc(Hons), MSc, MCIWEM C.WEM, C.Sci, C.Env.*

### Document Revision

| Report Reference      | Rev | Date       | Description                   | Prepared | Checked and Approved |
|-----------------------|-----|------------|-------------------------------|----------|----------------------|
| 6697val_Plots 231-237 | -   | 21/09/2023 | Inert Cover Validation Report | M A Wall | J A Lewis            |

This report has been prepared for and on behalf of our client, in accordance with the terms and conditions of the appointment agreement with Coopers. Other than where specifically allowed for in the said appointment agreement, any other party using this report for any purpose whatsoever does so at their own risk and any duty of care to that party is specifically excluded.

# INERT COVER VALIDATION REPORT FOR PLOTS 231-237

|                      |                                      |
|----------------------|--------------------------------------|
| Developer:           | Anwyl Homes                          |
| Site Name:           | “Maes y Rhedyn”, Gresford Road, Llay |
| NHBC Site Reference: | Land Quality Ref: 214996             |
| Planning Reference:  | APP/H6955/A/16/3147116 (P/2014/0905) |
| Date of Certificate: | 21 <sup>st</sup> September 2023      |

## Documents to be read in conjunction:

- REFA Consulting Engineers “Geo-environmental investigation report. Proposed residential development, Gresford Road, Llay, Wrexham”, Report Reference No. 17040/GEIR/A, dated November 2018.
- REFA Consulting Engineers “Remediation strategy policy for Gresford Road, Llay, Wrexham”, Report Reference No. 17040/REM/001/A, dated December 2019.

## Remediation Requirements in Gardens:

**Gardens:** Inert cover to be provided within front and rear gardens for Plots 349 to 352, rear gardens only in plots 231 to 237, 246 to 250 and 348 and adjacent public open spaces in the far west of the site as illustrated on REFA Consulting Engineers’ appended Drawing No. 17040/25RevA. Since the use of REFA’s Drawing No. 17040/25 Rev A, Coopers noted on site that part of the public open space fronting plots 231-134 is now designated as front gardens, which have been validated accordingly. While plots 235-237 have front gardens they lie outside of the remediation area. A growing medium will be required as follows in these locations:

**a minimum of 600mm of inert cover, comprising at least 150mm topsoil over 450mm subsoil in the rear gardens;**

**a minimum of 450mm of inert cover, comprising at least 150mm topsoil over 300mm subsoil in the front gardens;**

**a minimum of 450mm of inert cover, comprising at least 150mm topsoil over 300mm subsoil in the identified public open space areas,** in accordance with the REFA Consulting Engineers “Remediation strategy policy”.

## Validation Strategy:

Site won topsoil and natural drift strata were identified by the REFA Geo-environmental Investigation Report, as suitable for use and were identified as not requiring additional chemical analysis. Where soils are imported for use within the inert cover, sampling and chemical analysis of the imported soils will be required in accordance with the REFA Remediation Strategy Policy, as follows:

### **Sampling of imported soils delivered to site to be undertaken on site at the following frequency:**

Topsoil – 1:50 m<sup>3</sup>;

Subsoil – 1:150m<sup>3</sup>.

### **Chemical analysis of imported soils delivered to site to include:**

- a minimum of arsenic, cadmium, total chromium, copper, mercury, nickel, selenium, zinc, total cyanide, phenol, pH, soil organic matter and speciated (16) PAH compounds. Should materials be imported from a site not proven to be a greenfield site, additional analysis would be scheduled for TPHCWG including BTEX and MTBE compounds.

The results are to be screened against the Assessment Criteria Screening Values presented in the REFA Remediation Strategy Policy, the extracts of which have been appended to this report.

### **Validation of inert cover depths over the following coverage:**

Coopers to inspect each rear garden and one front garden per four plots, following completion of the inert cover placement, through validation holes undertaken by Coopers or open excavation, in accordance with REFA Remediation Strategy Policy.

|                      |                                                 |                                       |     |
|----------------------|-------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b>“Maes y Rhedyn”, Gresford<br/>Road, Llay</b> | Validation Certificate<br>Approved By | JAL |
|----------------------|-------------------------------------------------|---------------------------------------|-----|

**Garden Validation**

Coopers are satisfied that the inert cover depth has been successfully completed (details provided below). The material types are within the textural parameters expected for gardens and are fit for purpose and have been verified as greenfield/quarried sources of materials

| Plot Number of validation holes | Plot Range Covered by Validation Hole | Front / Rear / POS | Base of Topsoil | Base of Subsoil | Total Depth of Inert Cover | Description of Topsoil (see photographs)          | Description of Subsoil (see photographs) | Source of Topsoil | Source of Subsoil                                                 | Sample/Lab References (Appended)                                                                                                                                                                                                                                                                      |
|---------------------------------|---------------------------------------|--------------------|-----------------|-----------------|----------------------------|---------------------------------------------------|------------------------------------------|-------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 234                             | 231-234                               | Front              | 150mm           | 300mm           | 450mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 231                             | 231                                   | Rear               | 150mm           | 450mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 232                             | 232                                   | Rear               | 150mm           | 450mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 233                             | 233                                   | Rear               | 150mm           | 450mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |

|                   |                                                    |                                    |     |
|-------------------|----------------------------------------------------|------------------------------------|-----|
| DEVELOPMENT NAME: | <b><i>“Maes y Rhedyn”, Gresford Road, Llay</i></b> | Validation Certificate Approved By | JAL |
|-------------------|----------------------------------------------------|------------------------------------|-----|



chartered consulting engineers

| Plot Number of validation holes | Plot Range Covered by Validation Hole | Front / Rear / POS | Base of Topsoil | Base of Subsoil | Total Depth of Inert Cover | Description of Topsoil (see photographs)          | Description of Subsoil (see photographs) | Source of Topsoil | Source of Subsoil                                                 | Sample/Lab References (Appended)                                                                                                                                                                                                                                                                      |
|---------------------------------|---------------------------------------|--------------------|-----------------|-----------------|----------------------------|---------------------------------------------------|------------------------------------------|-------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 234                             | 234                                   | Rear               | 200mm           | 400mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 235                             | 235                                   | Rear               | 200mm           | 400mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 236                             | 236                                   | Rear               | 200mm           | 400mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |
| 237                             | 237                                   | Rear               | 200mm           | 400mm           | 600mm                      | Dark brown, slightly silty, sandy, clayey TOPSOIL | Light brown, silty SAND                  | Site won          | Verified greenfield source from Mescar Fisheries, Lydiate L31 4HS | Topsoil samples referenced in DETS Report Ref. 23-10549, dated 12 <sup>th</sup> May 2023. Subsoil samples referenced in appended Coopers' Certificate for Subsoil reference 230831, dated 13 <sup>th</sup> September 2023 (DETS Test Report Referenced 23-20212, dated 31 <sup>st</sup> August 2023). |

|                   |                                                    |                                    |     |
|-------------------|----------------------------------------------------|------------------------------------|-----|
| DEVELOPMENT NAME: | <b><i>“Maes y Rhedyn”, Gresford Road, Llay</i></b> | Validation Certificate Approved By | JAL |
|-------------------|----------------------------------------------------|------------------------------------|-----|

## PHOTOGRAPHIC RECORDS

One validation hole was undertaken in each of the rear gardens of Plots 231-237, and one validation hole in the front garden of Plot 234 to achieve the stipulated coverage of 1 per 4 for Plots 231-234 front gardens.

### PLOT 231 REAR



*Photographs 1 & 2: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 231 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 3: Photograph shows the nature of the inert cover within the validation hole in the rear garden of Plot 231. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                 |                                       |     |
|----------------------|-------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b>"Maes y Rhedyn", Gresford<br/>Road, Llay</b> | Validation Certificate<br>Approved By | JAL |
|----------------------|-------------------------------------------------|---------------------------------------|-----|

**PLOT 232 REAR**



*Photographs 4 & 5: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 232 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 6: Photograph shows the nature of the inert cover within the validation hole in the rear garden of Plot 232. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 233 REAR**



*Photographs 7 & 8: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 233 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 9: Photograph shows the nature of the inert cover within the validation hole in the front garden of Plot 233. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 234 REAR**



*Photographs 10 & 11: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 234 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 12: Photograph shows the nature of the inert cover within the validation hole in the front garden of Plot 234. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 235 REAR**



*Photographs 13 & 14: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 235 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 15: Photograph shows the nature of the inert cover within the validation hole in the rear garden of Plot 235. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 236 REAR**



*Photographs 16 & 17: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 236 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 18: Photograph shows the nature of the inert cover within the validation hole in the rear garden of Plot 236. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 237 REAR**



*Photographs 19 & 20: Showing the depth of the inert cover and location of the validation hole within the rear garden of Plot 237 and the depth of inert cover achieved. Photographs taken 13<sup>th</sup> September 2023.*



*Photograph 21: Photograph shows the nature of the inert cover within the validation hole in the rear garden of Plot 237. Photograph taken 13<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**PLOT 234 FRONT**



*Photographs 22 & 23: Showing the depth of the inert cover and location of the validation hole within the front garden of Plot 234 and the depth of inert cover achieved. Photographs taken 20<sup>th</sup> September 2023.*



*Photograph 24: Photograph shows the nature of the inert cover within the validation hole in the front garden of Plot 234. Photograph taken 20<sup>th</sup> September 2023.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|

**Coopers confirm all remediation requirements for these plots are completed in accordance with the referenced report/strategy and anticipate no further remediation or validation is required to complete these plots.**

Documents appended:

1. DETS Report Referenced 23-10549, dated 12<sup>th</sup> May 2023
2. Coopers' Certificate for Subsoil Reference 230831, dated 13<sup>th</sup> September 2023
3. REFA Consulting Engineers Assessment Criteria Screening Values
4. REFA Consulting Engineers Drawing No. 17040/25RevA

Footnote: -

*This Certificate is a record of Coopers' validation of gardens on the dates given within the aforementioned text. Coopers undertake validation when requested by the developer. Compliance or non-compliance of the remediation objectives or criteria is ascertained on those dates only. Coopers cannot be held responsible for any subsequent actions by third parties not under Coopers direct supervision, which may compromise the integrity or quality of the inert cover after the date of validation. In such cases it is deemed that it will be the responsibility of the developer, in liaison with the NHBC, to make good any damage or loss of quality of the inert cover layer or topsoil. It will then be at the discretion of the NHBC to decide whether any additional validation is warranted or required.*

|                      |                                                        |                                       |     |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|
| DEVELOPMENT<br>NAME: | <b><i>“Maes y Rhedyn”, Gresford<br/>Road, Llay</i></b> | Validation Certificate<br>Approved By | JAL |
|----------------------|--------------------------------------------------------|---------------------------------------|-----|



## Certificate of Analysis

**Certificate Number** 23-10549

**Issued:** 12-May-23

**Client** Coopers (Chester) Ltd  
Park House  
Sandpiper Court  
Chester Business Park  
Chester  
CH4 9QU

**Our Reference** 23-10549

**Client Reference** 6697

**Order No** 9700-SD

**Contract Title** Phases Gresford Road, Llay

**Description** 7 Soil samples.

**Date Received** 03-May-23

**Date Started** 03-May-23

**Date Completed** 12-May-23

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



## Summary of Chemical Analysis

### Matrix Descriptions

*Our Ref* 23-10549

*Client Ref* 6697

*Contract Title* Phases Gresford Road, Llay

| Sample ID | Lab No  | Completed  | Matrix Description                                         |
|-----------|---------|------------|------------------------------------------------------------|
| SP1-S1    | 2165763 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-S2    | 2165764 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-S3    | 2165765 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-S4    | 2165766 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP2-S1    | 2165767 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP2-S2    | 2165768 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP2-S3    | 2165769 | 12/05/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |

# Summary of Chemical Analysis

## Soil Samples

Our Ref 23-10549

Client Ref 6697

Contract Title Phases Gresford Road, Llay

| Lab No        | 2165763    | 2165764    | 2165765    | 2165766    | 2165767    | 2165768    | 2165769    |
|---------------|------------|------------|------------|------------|------------|------------|------------|
| Sample ID     | SP1-S1     | SP1-S2     | SP1-S3     | SP1-S4     | SP2-S1     | SP2-S2     | SP2-S3     |
| Depth         |            |            |            |            |            |            |            |
| Other ID      |            |            |            |            |            |            |            |
| Sample Type   | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       |
| Sampling Date | 27/04/2023 | 27/04/2023 | 27/04/2023 | 27/04/2023 | 27/04/2023 | 27/04/2023 | 27/04/2023 |
| Sampling Time | n/s        | n/s        | n/s        | n/s        | n/s        | n/s        | n/s        |

| Test                                              | Method      | LOD   | Units |        |        |        |        |        |        |        |
|---------------------------------------------------|-------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| <b>Metals</b>                                     |             |       |       |        |        |        |        |        |        |        |
| Arsenic                                           | DETSC 2301# | 0.2   | mg/kg | 7.5    | 7.2    | 9.0    | 9.3    | 8.3    | 9.2    | 8.7    |
| Beryllium                                         | DETSC 2301# | 0.2   | mg/kg | 0.5    | 0.6    | 0.4    | 0.4    | 0.4    | 0.4    | 0.4    |
| Boron, Water Soluble (2.5:1)                      | DETSC 2311# | 0.2   | mg/kg | 0.5    | 0.3    | 0.7    | 0.9    | 0.9    | 1.0    | 0.9    |
| Cadmium                                           | DETSC 2301# | 0.1   | mg/kg | 0.2    | 0.1    | 0.3    | 0.2    | 0.3    | 0.3    | 0.3    |
| Chromium                                          | DETSC 2301# | 0.15  | mg/kg | 18     | 18     | 19     | 23     | 17     | 19     | 17     |
| Chromium, Hexavalent                              | DETSC 2204* | 1     | mg/kg | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| Copper                                            | DETSC 2301# | 0.2   | mg/kg | 21     | 20     | 25     | 21     | 25     | 27     | 28     |
| Lead                                              | DETSC 2301# | 0.3   | mg/kg | 27     | 23     | 45     | 33     | 43     | 48     | 44     |
| Mercury                                           | DETSC 2325# | 0.05  | mg/kg | 0.05   | < 0.05 | 0.07   | 0.07   | 0.05   | 0.08   | 0.06   |
| Nickel                                            | DETSC 2301# | 1     | mg/kg | 15     | 20     | 12     | 16     | 11     | 13     | 11     |
| Selenium                                          | DETSC 2301# | 0.5   | mg/kg | < 0.5  | < 0.5  | < 0.5  | < 0.5  | < 0.5  | < 0.5  | < 0.5  |
| Vanadium                                          | DETSC 2301# | 0.8   | mg/kg | 24     | 23     | 28     | 33     | 25     | 28     | 26     |
| Zinc                                              | DETSC 2301# | 1     | mg/kg | 61     | 50     | 93     | 79     | 87     | 92     | 97     |
| <b>Inorganics</b>                                 |             |       |       |        |        |        |        |        |        |        |
| pH                                                | DETSC 2008# |       | pH    | 7.2    | 7.8    | 7.0    | 7.0    | 7.0    | 7.2    | 7.3    |
| Cyanide, Total                                    | DETSC 2130# | 0.1   | mg/kg | 0.3    | < 0.1  | 0.4    | 0.4    | 0.4    | 0.5    | 0.4    |
| FOC                                               | DETSC 2002  | 0.001 |       | 0.019  | 0.010  | 0.028  | 0.028  | 0.020  | 0.020  | 0.031  |
| Total Organic Carbon                              | DETSC 2002  | 0.1   | %     | 1.9    | 1.0    | 2.8    | 2.8    | 2.0    | 2.0    | 3.1    |
| Sulphate Aqueous Extract as SO <sub>4</sub> (2:1) | DETSC 2076# | 10    | mg/l  | 51     | 59     | 51     | 54     | 50     | 48     | 48     |
| Sulphate as SO <sub>4</sub> , Total               | DETSC 2321# | 0.01  | %     | 0.06   | 0.04   | 0.08   | 0.07   | 0.09   | 0.09   | 0.08   |
| <b>PAHs</b>                                       |             |       |       |        |        |        |        |        |        |        |
| Naphthalene                                       | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Acenaphthylene                                    | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Acenaphthene                                      | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Fluorene                                          | DETSC 3303  | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Phenanthrene                                      | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | 0.04   | 0.08   | 0.12   | 0.04   | 0.04   |
| Anthracene                                        | DETSC 3303  | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Fluoranthene                                      | DETSC 3303# | 0.03  | mg/kg | 0.06   | 0.04   | 0.09   | 0.13   | 0.57   | 0.09   | 0.11   |
| Pyrene                                            | DETSC 3303# | 0.03  | mg/kg | 0.05   | 0.04   | 0.08   | 0.11   | 0.57   | 0.08   | 0.09   |
| Benzo(a)anthracene                                | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | 0.04   | 0.05   | 0.25   | 0.05   | 0.05   |
| Chrysene                                          | DETSC 3303  | 0.03  | mg/kg | 0.05   | 0.04   | 0.07   | 0.08   | 0.31   | 0.07   | 0.08   |
| Benzo(b)fluoranthene                              | DETSC 3303# | 0.03  | mg/kg | 0.04   | 0.04   | 0.06   | 0.07   | 0.53   | 0.07   | 0.07   |
| Benzo(k)fluoranthene                              | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.21   | < 0.03 | 0.03   |
| Benzo(a)pyrene                                    | DETSC 3303# | 0.03  | mg/kg | 0.03   | 0.05   | 0.05   | 0.06   | 0.62   | 0.05   | 0.07   |
| Indeno(1,2,3-c,d)pyrene                           | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.21   | < 0.03 | < 0.03 |
| Dibenzo(a,h)anthracene                            | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.05   | < 0.03 | < 0.03 |
| Benzo(g,h,i)perylene                              | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.25   | < 0.03 | < 0.03 |
| PAH - USEPA 16, Total                             | DETSC 3303  | 0.1   | mg/kg | 0.20   | 0.21   | 0.44   | 0.59   | 3.7    | 0.41   | 0.52   |
| <b>Phenols</b>                                    |             |       |       |        |        |        |        |        |        |        |
| Phenol - Monohydric                               | DETSC 2130# | 0.3   | mg/kg | < 0.3  | < 0.3  | 0.3    | 0.5    | 0.5    | 0.3    | 0.4    |

## Information in Support of the Analytical Results

Our Ref 23-10549  
 Client Ref 6697  
 Contract Phases Gresford Road, Llay

### Containers Received & Deviating Samples

| Lab No  | Sample ID   | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|-------------|--------------|---------------------|---------------------------------|-----------------------------------|
| 2165763 | SP1-S1 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165764 | SP1-S2 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165765 | SP1-S3 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165766 | SP1-S4 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165767 | SP2-S1 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165768 | SP2-S2 SOIL | 27/04/23     | PG                  |                                 |                                   |
| 2165769 | SP2-S3 SOIL | 27/04/23     | PG                  |                                 |                                   |

Key: P-Plastic G-Bag

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

## Appendix A - Details of Analysis

| Method     | Parameter                                   | Units    | Limit of Detection | Sample Preparation | Sub-Contracted | UKAS | MCERTS |
|------------|---------------------------------------------|----------|--------------------|--------------------|----------------|------|--------|
| DETSC 2002 | Organic matter                              | %        | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2003 | Loss on ignition                            | %        | 0.01               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2008 | pH                                          | pH Units | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2076 | Sulphate Aqueous Extract as SO <sub>4</sub> | mg/l     | 10                 | Air Dried          | No             | Yes  | Yes    |
| DETSC 2084 | Total Organic Carbon                        | %        | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2119 | Ammoniacal Nitrogen as N                    | mg/kg    | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Cyanide free                                | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Cyanide total                               | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Phenol - Monohydric                         | mg/kg    | 0.3                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Thiocyanate                                 | mg/kg    | 0.6                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Arsenic                                     | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Barium                                      | mg/kg    | 1.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Beryllium                                   | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cadmium Available                           | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cadmium                                     | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cobalt                                      | mg/kg    | 0.7                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Chromium                                    | mg/kg    | 0.15               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Copper                                      | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Manganese                                   | mg/kg    | 20                 | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Molybdenum                                  | mg/kg    | 0.4                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Nickel                                      | mg/kg    | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Lead                                        | mg/kg    | 0.3                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Selenium                                    | mg/kg    | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Zinc                                        | mg/kg    | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2311 | Boron (water soluble)                       | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2321 | Total Sulphate as SO <sub>4</sub>           | %        | 0.01               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2325 | Mercury                                     | mg/kg    | 0.05               | Air Dried          | No             | Yes  | Yes    |
| DETSC 3049 | Sulphur (free)                              | mg/kg    | 0.75               | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Ali/Aro C10-C35                             | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C10-C12                           | mg/kg    | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C10-C35                           | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C12-C16                           | mg/kg    | 1.2                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C16-C21                           | mg/kg    | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C21-C35                           | mg/kg    | 3.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C10-C12                            | mg/kg    | 0.9                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C10-C35                            | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C12-C16                            | mg/kg    | 0.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C16-C21                            | mg/kg    | 0.6                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C21-C35                            | mg/kg    | 1.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Acenaphthene                                | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Acenaphthylene                              | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(a)pyrene                              | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(a)anthracene                          | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(b)fluoranthene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(k)fluoranthene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(g,h,i)perylene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Dibenzo(a,h)anthracene                      | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Fluoranthene                                | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |

## Appendix A - Details of Analysis

| Method     | Parameter                              | Units | Limit of Detection | Sample Preparation | Sub-Contracted | UKAS | MCERTS |
|------------|----------------------------------------|-------|--------------------|--------------------|----------------|------|--------|
| DETSC 3303 | Indeno(1,2,3-c,d)pyrene                | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Naphthalene                            | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Phenanthrene                           | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Pyrene                                 | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | C10-C24 Diesel Range Organics (DRO)    | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | C24-C40 Lube Oil Range Organics (LORO) | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | EPH (C10-C40)                          | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Benzene                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Ethylbenzene                           | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Toluene                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Xylene                                 | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | m+p Xylene                             | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | o Xylene                               | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 28 + PCB 31                        | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 52                                 | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 101                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 118                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 153                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 138                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 180                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB Total                              | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Ali/Aro C10-C35                        | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C10-C12                      | mg/kg | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C10-C35                      | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C12-C16                      | mg/kg | 1.2                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C16-C21                      | mg/kg | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C21-C35                      | mg/kg | 3.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C10-C12                       | mg/kg | 0.9                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C10-C35                       | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C12-C16                       | mg/kg | 0.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C16-C21                       | mg/kg | 0.6                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C21-C35                       | mg/kg | 1.4                | As Received        | No             | Yes  | Yes    |

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

## **CERTIFICATE FOR THE SAND SUBSOIL**

### **REFERENCE - 230831**

|                                             |                                                   |                                                                                     |
|---------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------|
| Developer:                                  | Anwyl Homes                                       |                                                                                     |
| Source Location:                            | Mescar Fisheries, Lydiate                         |                                                                                     |
| Volume:                                     | 624m <sup>3</sup> (approx.)                       |                                                                                     |
| Supplied By:                                | R. Draper Ltd                                     |                                                                                     |
| Sampled at:                                 | Drapers Yard, Bickerstaffe                        |                                                                                     |
| Date of First Inspection and Soil Sampling: | 21 <sup>st</sup> August 2023                      |                                                                                     |
| Dates of Follow Up Inspections              | 6 <sup>th</sup> September 2023                    |                                                                                     |
| Previous Revisions:                         | N/A                                               |                                                                                     |
| Report Date:                                | 13 <sup>th</sup> September 2023                   |                                                                                     |
| Report Prepared By:                         | <b>L Phillips</b><br><i>MEng (Hons)</i>           |  |
|                                             |                                                   |                                                                                     |
| Report Checked and Approved By:             | <b>M A Wall</b><br><i>BSc (Hons), MEngSc, FGS</i> |  |
|                                             |                                                   |                                                                                     |
| Revision Completed By and Dated:            | <b>N/A</b>                                        |                                                                                     |
|                                             | <i>N/A</i>                                        |                                                                                     |

**This is to certify that the imported subsoil is within the Coopers generic criteria as suitable for use in private residential gardens with plant uptake.**

### **Source Locations and Stockpile Control:**

The sampled stockpile originated from the location discussed below:

Mescar Fisheries, Lydiate - SD 37156 05735

This source site was a scraping of subsoil from a greenfield site, the centre of which is approximately at National Grid Reference (SD 37156 05735) and 5.1 miles northeast from R. Draper Ltd's facility. The nature of the source was verified by inspection of the first edition historical maps produced in 1888-1913 (refer to Figure 1) and the 1937-1961 edition map (refer to Figure 2) as well as recent satellite imagery (Figure 3) confirming the site has remained undeveloped for over 133 years. The subsoil was stripped from the source location and transported to R. Draper Ltd.'s storage yard off Stopgate Lane, Bickerstaffe for grading. The material was stockpiled specifically for Anwyl Homes and verified as suitable for use by Coopers (refer to chemical analysis section for details).

- 2 -

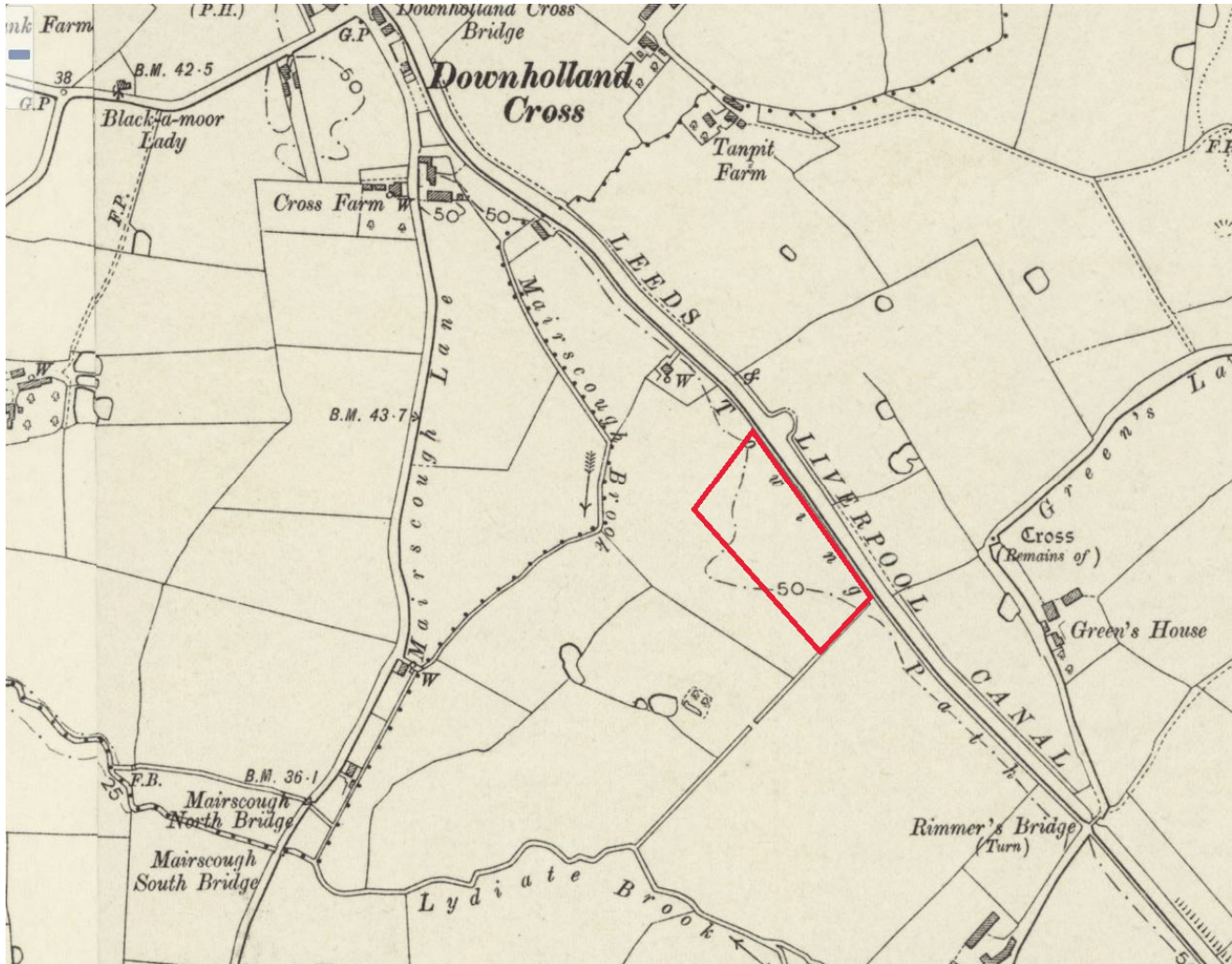


Figure 1: First Edition Historical Ordnance Survey Six Inch Map 1888-1913 showing that the site comprised of agricultural land. There was no development on the site at that time.

- 3 -

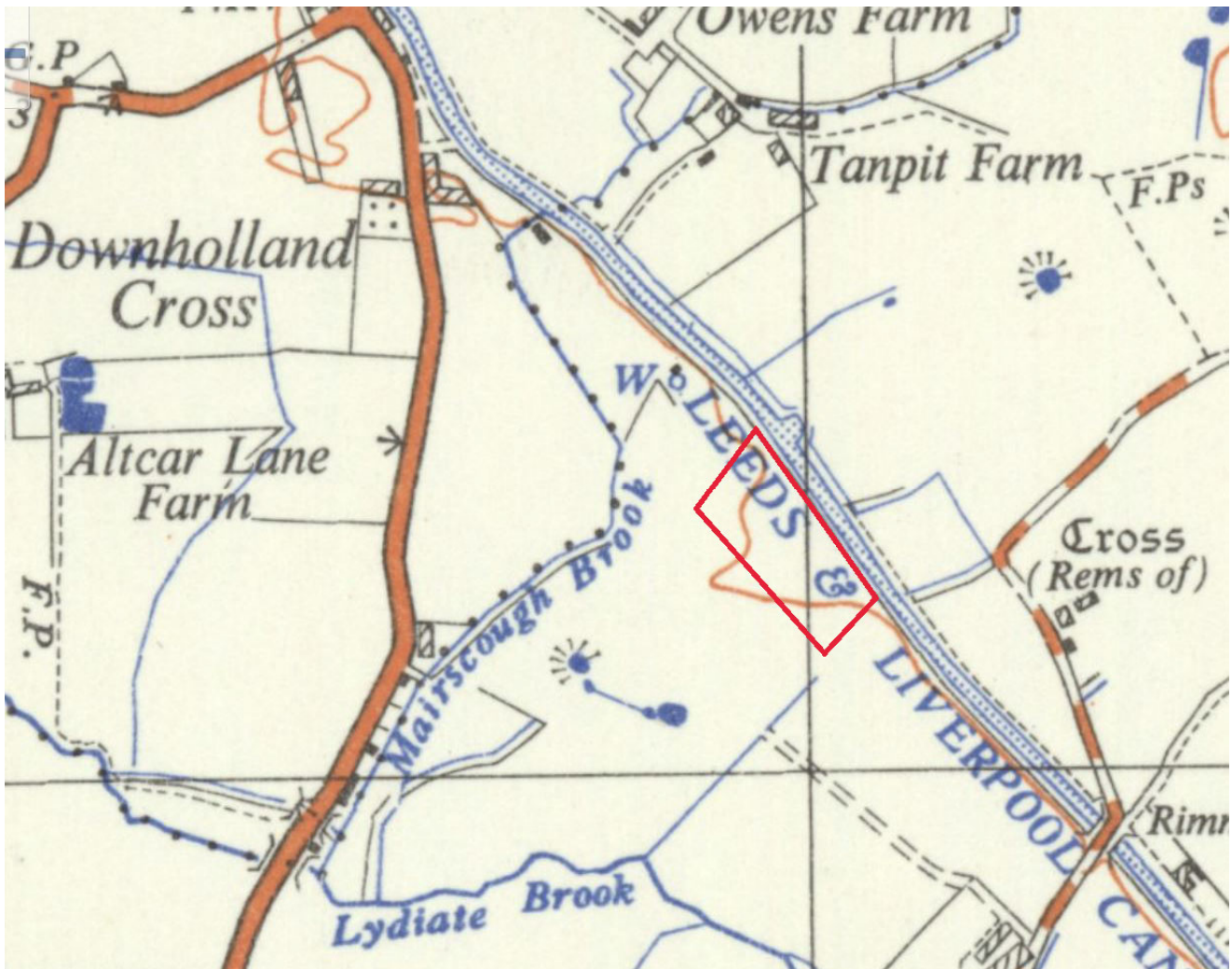


Figure 2: Historical Ordnance Survey Map from 1937-1961 that the site still comprised of agricultural land. No development was noted.

- 4 -



Figure 3: Satellite image taken from google maps 2022 showing no development on this site at this time.

- 5 -

Extract of REFA's Assessment Criteria Screening Values

| <b>Table 3: Assessment Criteria Screening Values site generated and imported soils</b>                                                                                                                                     |                                                                 |                                                                                   |                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Determinand</b>                                                                                                                                                                                                         | <b>Assessment Criteria for capping soils in gardens (mg/kg)</b> | <b>Assessment Criteria for capping soils utilised in landscaped areas (mg/kg)</b> | <b>Assessment Criteria for capping soils utilised in POS (mg/kg)</b> |
| <b>Suite A</b>                                                                                                                                                                                                             |                                                                 |                                                                                   |                                                                      |
| Arsenic                                                                                                                                                                                                                    | 37 <sup>3</sup>                                                 | 40 <sup>3</sup>                                                                   | 79 <sup>3</sup>                                                      |
| Cadmium                                                                                                                                                                                                                    | 11.0 <sup>3</sup>                                               | 85.0 <sup>3</sup>                                                                 | 120 <sup>3</sup>                                                     |
| Chromium (total)                                                                                                                                                                                                           | 910 <sup>3</sup>                                                | 910 <sup>3</sup>                                                                  | 1500 <sup>3</sup>                                                    |
| Copper                                                                                                                                                                                                                     | 2400 <sup>3</sup>                                               | 7100 <sup>3</sup>                                                                 | 12000 <sup>3</sup>                                                   |
| Lead                                                                                                                                                                                                                       | 200 <sup>3</sup>                                                | 310 <sup>3</sup>                                                                  | 630 <sup>3</sup>                                                     |
| Mercury                                                                                                                                                                                                                    | 40 <sup>3</sup>                                                 | 40 <sup>3</sup>                                                                   | 120 <sup>3</sup>                                                     |
| Nickel                                                                                                                                                                                                                     | 180 <sup>3</sup>                                                | 180 <sup>3</sup>                                                                  | 230 <sup>3</sup>                                                     |
| Selenium                                                                                                                                                                                                                   | 250 <sup>3</sup>                                                | 430 <sup>3</sup>                                                                  | 1100 <sup>4</sup>                                                    |
| Zinc                                                                                                                                                                                                                       | 3700 <sup>3</sup>                                               | 40000 <sup>3</sup>                                                                | 81,000 <sup>3</sup>                                                  |
| Total Cyanide                                                                                                                                                                                                              | 34.0 <sup>2</sup>                                               | 34.0 <sup>2</sup>                                                                 | 34.0 <sup>2</sup>                                                    |
| Phenol                                                                                                                                                                                                                     | 380 <sup>3</sup>                                                | 440 <sup>3</sup>                                                                  | 440 <sup>3</sup>                                                     |
| <b>Suite B</b>                                                                                                                                                                                                             |                                                                 |                                                                                   |                                                                      |
| Acenaphthene                                                                                                                                                                                                               | 1100 <sup>3</sup>                                               | 6000 <sup>3</sup>                                                                 | 15000 <sup>3</sup>                                                   |
| Acenaphthylene                                                                                                                                                                                                             | 920 <sup>3</sup>                                                | 6000 <sup>3</sup>                                                                 | 15000 <sup>3</sup>                                                   |
| Anthracene                                                                                                                                                                                                                 | 11000 <sup>3</sup>                                              | 37000 <sup>3</sup>                                                                | 74000 <sup>3</sup>                                                   |
| Benzo(a)anthracene                                                                                                                                                                                                         | 13.0 <sup>3</sup>                                               | 15.0 <sup>3</sup>                                                                 | 29.0 <sup>3</sup>                                                    |
| Benzo(a)pyrene                                                                                                                                                                                                             | 5.0 <sup>1</sup>                                                | 5.3 <sup>1</sup>                                                                  | 10.0 <sup>2</sup>                                                    |
| Benzo(b)fluoranthene                                                                                                                                                                                                       | 3.7 <sup>3</sup>                                                | 4.0 <sup>3</sup>                                                                  | 7.2 <sup>3</sup>                                                     |
| Benzo(ghi)perylene                                                                                                                                                                                                         | 350 <sup>3</sup>                                                | 360 <sup>3</sup>                                                                  | 640 <sup>3</sup>                                                     |
| Benzo(k)fluoranthene                                                                                                                                                                                                       | 100 <sup>3</sup>                                                | 110 <sup>3</sup>                                                                  | 190 <sup>3</sup>                                                     |
| Chrysene                                                                                                                                                                                                                   | 27.0 <sup>3</sup>                                               | 32.0 <sup>3</sup>                                                                 | 57.0 <sup>3</sup>                                                    |
| Dibenz(ah)anthracene                                                                                                                                                                                                       | 0.30 <sup>3</sup>                                               | 0.32 <sup>3</sup>                                                                 | 0.58 <sup>3</sup>                                                    |
| Fluoranthene                                                                                                                                                                                                               | 890 <sup>3</sup>                                                | 1600 <sup>3</sup>                                                                 | 3100 <sup>3</sup>                                                    |
| Fluorene                                                                                                                                                                                                                   | 860 <sup>3</sup>                                                | 4500 <sup>3</sup>                                                                 | 9900 <sup>3</sup>                                                    |
| Indeno(123-cd) pyrene                                                                                                                                                                                                      | 41.0 <sup>3</sup>                                               | 46.0 <sup>3</sup>                                                                 | 82.0 <sup>3</sup>                                                    |
| Naphthalene                                                                                                                                                                                                                | 13.0 <sup>3</sup>                                               | 13.0 <sup>3</sup>                                                                 | 4900 <sup>3</sup>                                                    |
| Phenanthrene                                                                                                                                                                                                               | 440 <sup>3</sup>                                                | 1500 <sup>3</sup>                                                                 | 1300 <sup>3</sup>                                                    |
| Pyrene                                                                                                                                                                                                                     | 2000 <sup>3</sup>                                               | 3800 <sup>3</sup>                                                                 | 7400 <sup>3</sup>                                                    |
| <b>Suite C</b>                                                                                                                                                                                                             |                                                                 |                                                                                   |                                                                      |
| Asbestos Screen                                                                                                                                                                                                            | ND                                                              | ND                                                                                | ND                                                                   |
| <b>Suite D</b>                                                                                                                                                                                                             |                                                                 |                                                                                   |                                                                      |
| Aliphatic EC 5-6                                                                                                                                                                                                           | 160 <sup>3</sup>                                                | 160 <sup>3</sup>                                                                  | 600000 <sup>3</sup>                                                  |
| Aliphatic EC >6-8                                                                                                                                                                                                          | 530 <sup>3</sup>                                                | 530 <sup>3</sup>                                                                  | 620000 <sup>3</sup>                                                  |
| Aliphatic EC >8-10                                                                                                                                                                                                         | 150 <sup>3</sup>                                                | 150 <sup>3</sup>                                                                  | 13000 <sup>3</sup>                                                   |
| Aliphatic EC >10-12                                                                                                                                                                                                        | 760 <sup>3</sup>                                                | 770 <sup>3</sup>                                                                  | 13000 <sup>3</sup>                                                   |
| Aliphatic EC >12-16                                                                                                                                                                                                        | 4300 <sup>3</sup>                                               | 4400 <sup>3</sup>                                                                 | 13000 <sup>3</sup>                                                   |
| Aliphatic EC >16-35                                                                                                                                                                                                        | 11000 <sup>3</sup>                                              | 11000 <sup>3</sup>                                                                | 250000 <sup>3</sup>                                                  |
| Aliphatic EC >35-44                                                                                                                                                                                                        | 11000 <sup>3</sup>                                              | 11000 <sup>3</sup>                                                                | 250000 <sup>3</sup>                                                  |
| Aromatic EC 5-7                                                                                                                                                                                                            | 300 <sup>3</sup>                                                | 1400 <sup>3</sup>                                                                 | 56000 <sup>3</sup>                                                   |
| Aliphatic EC >7-8                                                                                                                                                                                                          | 660 <sup>3</sup>                                                | 3900 <sup>3</sup>                                                                 | 56000 <sup>3</sup>                                                   |
| Aromatic EC >8-10                                                                                                                                                                                                          | 190 <sup>3</sup>                                                | 270 <sup>3</sup>                                                                  | 5000 <sup>3</sup>                                                    |
| Aromatic EC >10-12                                                                                                                                                                                                         | 380 <sup>3</sup>                                                | 1200 <sup>3</sup>                                                                 | 5000 <sup>3</sup>                                                    |
| Aromatic EC >12-16                                                                                                                                                                                                         | 6603                                                            | 2500 <sup>3</sup>                                                                 | 5000 <sup>3</sup>                                                    |
| Aromatic EC >16-21                                                                                                                                                                                                         | 930 <sup>3</sup>                                                | 1900 <sup>3</sup>                                                                 | 3800 <sup>3</sup>                                                    |
| Aromatic EC >21-35                                                                                                                                                                                                         | 1700 <sup>3</sup>                                               | 1900 <sup>3</sup>                                                                 | 3800 <sup>3</sup>                                                    |
| Aromatic EC >35-44                                                                                                                                                                                                         | 1700 <sup>3</sup>                                               | 1900 <sup>3</sup>                                                                 | 3800 <sup>3</sup>                                                    |
| Benzene                                                                                                                                                                                                                    | 0.37 <sup>3</sup>                                               | 1.4 <sup>3</sup>                                                                  | 73.0 <sup>3</sup>                                                    |
| Toluene                                                                                                                                                                                                                    | 660 <sup>3</sup>                                                | 3900 <sup>3</sup>                                                                 | 56000 <sup>3</sup>                                                   |
| EthylBenzene                                                                                                                                                                                                               | 260 <sup>3</sup>                                                | 440 <sup>3</sup>                                                                  | 25000 <sup>3</sup>                                                   |
| M/P Xylenes                                                                                                                                                                                                                | 320 <sup>3</sup>                                                | 430 <sup>3</sup>                                                                  | 43000 <sup>3</sup>                                                   |
| O Xylene                                                                                                                                                                                                                   | 330 <sup>3</sup>                                                | 480 <sup>3</sup>                                                                  | 43000 <sup>3</sup>                                                   |
| Methyl tert-Butyl Ether                                                                                                                                                                                                    | 20 <sup>2</sup>                                                 | 20 <sup>2</sup>                                                                   | 85500 <sup>2</sup>                                                   |
| <sup>1</sup> DEFRA : SP1010 : Category 4 Screening Levels<br><sup>2</sup> Atkins Atrisk SSV values<br><sup>3</sup> LQM and CIEH S4UL's for Human Health Risk Assessment (Registration No. S4UL 3265)<br>ND – None Detected |                                                                 |                                                                                   |                                                                      |

**Chemical Analysis and Assessment**

The subsoil was stripped from the source location, by R. Draper Ltd and put into 1 No. stockpile dedicated for use solely on Anwyl Homes residential development off Gresford Road, Llay. Coopers attended Drapers' compound on 21<sup>st</sup> August 2023 and paced out the stockpile, estimating the volume to be approximately 624m<sup>3</sup>. 5 No. samples were collected from within the stockpile, of which all were submitted to Derwentside Environmental Testing Services Ltd

- 6 -

(DETS) for chemical analysis ensuring a quota of at least 1 sample per 150m<sup>3</sup> was achieved in testing. All samples are referenced in the DETS Certificate of Analysis Reference No. 23-20212, dated 31<sup>st</sup> August 2023. The results indicate that the subsoil is suitable for use within residential gardens. However the sulphate concentrations are slightly elevated, therefore any material to be placed in direct contact with concrete, its BRE designation would need to change to DS-2.

### **Photographic records**

Below are photographs documenting Coopers' stockpile inspection and sampling and any periodic inspection of the stockpile ensuring the material remains free from cross mixing. Coopers are satisfied that the quality of this stockpile has been maintained and prevented from any cross mixing.

This report should be updated every two weeks with a selection of photographs to demonstrate the periodic inspections confirming the stockpile management practices.

#### **Stockpile Sampling and Inspection – 21<sup>st</sup> August 2023**



*Photographs 1 & 2: Showing the status and nature of the Anwyl Homes subsoil stockpile during sampling and inspection on 21<sup>st</sup> August 2023.*

#### **Stockpile Inspection – 6<sup>th</sup> September 2023**



*Photographs 3 & 4: Showing the status and nature of the Anwyl Homes subsoil stockpile during an inspection on 6<sup>th</sup> September 2023.*

#### **Documents appended:**

1. DETS Certificate of Analysis, Report reference no. 23-20212, dated 31<sup>st</sup> August 2023.



## Certificate of Analysis

**Certificate Number** 23-20212

**Issued:** 31-Aug-23

**Client** Coopers (Chester) Ltd  
Park House  
Sandpiper Court  
Chester Business Park  
Chester  
CH4 9QU

**Our Reference** 23-20212

**Client Reference** 6697

**Order No** 9787

**Contract Title** Greford Road, Llay

**Description** 5 Soil samples.

**Date Received** 24-Aug-23

**Date Started** 24-Aug-23

**Date Completed** 31-Aug-23

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

Kirk Bridgewood  
General Manager



## Summary of Chemical Analysis

### Matrix Descriptions

*Our Ref* 23-20212

*Client Ref* 6697

*Contract Title* Greford Road, Llay

| Sample ID | Lab No  | Completed  | Matrix Description                                         |
|-----------|---------|------------|------------------------------------------------------------|
| SP1-SS1   | 2223076 | 31/08/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-SS2   | 2223077 | 31/08/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-SS3   | 2223078 | 31/08/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-SS4   | 2223079 | 31/08/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |
| SP1-SS5   | 2223080 | 31/08/2023 | Brown slightly gravelly, sandy CLAY including odd rootlets |

# Summary of Chemical Analysis

## Soil Samples

Our Ref 23-20212

Client Ref 6697

Contract Title Greford Road, Llay

| Lab No        | 2223076    | 2223077    | 2223078    | 2223079    | 2223080    |
|---------------|------------|------------|------------|------------|------------|
| Sample ID     | SP1-SS1    | SP1-SS2    | SP1-SS3    | SP1-SS4    | SP1-SS5    |
| Depth         |            |            |            |            |            |
| Other ID      |            |            |            |            |            |
| Sample Type   | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       |
| Sampling Date | 21/08/2023 | 21/08/2023 | 21/08/2023 | 21/08/2023 | 21/08/2023 |
| Sampling Time | n/s        | n/s        | n/s        | n/s        | n/s        |

| Test                                  | Method      | LOD   | Units |        |        |        |        |        |
|---------------------------------------|-------------|-------|-------|--------|--------|--------|--------|--------|
| <b>Metals</b>                         |             |       |       |        |        |        |        |        |
| Arsenic                               | DETSC 2301# | 0.2   | mg/kg | 7.2    | 5.8    | 6.6    | 7.3    | 8.3    |
| Beryllium                             | DETSC 2301# | 0.2   | mg/kg | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    |
| Boron, Water Soluble (2.5:1)          | DETSC 2311# | 0.2   | mg/kg | 2.0    | 1.5    | 1.6    | 1.8    | 1.5    |
| Cadmium                               | DETSC 2301# | 0.1   | mg/kg | 0.3    | 0.2    | 0.2    | 0.3    | 0.2    |
| Chromium                              | DETSC 2301# | 0.15  | mg/kg | 18     | 8.0    | 11     | 14     | 9.4    |
| Chromium, Hexavalent                  | DETSC 2204* | 1     | mg/kg | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| Copper                                | DETSC 2301# | 0.2   | mg/kg | 38     | 29     | 28     | 34     | 30     |
| Lead                                  | DETSC 2301# | 0.3   | mg/kg | 160    | 72     | 130    | 92     | 62     |
| Mercury                               | DETSC 2325# | 0.05  | mg/kg | 0.11   | 0.05   | < 0.05 | 0.06   | 0.06   |
| Nickel                                | DETSC 2301# | 1     | mg/kg | 11     | 8.0    | 9.8    | 11     | 9.5    |
| Selenium                              | DETSC 2301# | 0.5   | mg/kg | < 0.5  | < 0.5  | < 0.5  | < 0.5  | < 0.5  |
| Vanadium                              | DETSC 2301# | 0.8   | mg/kg | 17     | 12     | 14     | 15     | 15     |
| Zinc                                  | DETSC 2301# | 1     | mg/kg | 120    | 100    | 110    | 180    | 89     |
| <b>Inorganics</b>                     |             |       |       |        |        |        |        |        |
| pH                                    | DETSC 2008# |       | pH    | 9.7    | 9.3    | 9.2    | 9.3    | 9.5    |
| Cyanide, Total                        | DETSC 2130# | 0.1   | mg/kg | 0.2    | 0.2    | 0.2    | 0.1    | 0.2    |
| FOC                                   | DETSC 2002  | 0.001 |       | 0.004  | 0.005  | 0.005  | 0.005  | 0.005  |
| Total Organic Carbon                  | DETSC 2002  | 0.1   | %     | 0.4    | 0.5    | 0.5    | 0.5    | 0.5    |
| Sulphate Aqueous Extract as SO4 (2:1) | DETSC 2076# | 10    | mg/l  | 1200   | 950    | 1100   | 940    | 270    |
| Sulphate as SO4, Total                | DETSC 2321# | 0.01  | %     | 0.41   | 0.26   | 0.31   | 0.20   | 0.29   |
| <b>PAHs</b>                           |             |       |       |        |        |        |        |        |
| Naphthalene                           | DETSC 3303# | 0.03  | mg/kg | 0.03   | 0.14   | < 0.03 | 0.10   | 0.05   |
| Acenaphthylene                        | DETSC 3303# | 0.03  | mg/kg | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Acenaphthene                          | DETSC 3303# | 0.03  | mg/kg | 0.07   | 0.10   | 0.08   | 0.13   | 0.13   |
| Fluorene                              | DETSC 3303  | 0.03  | mg/kg | 0.06   | 0.09   | 0.07   | 0.13   | 0.12   |
| Phenanthrene                          | DETSC 3303# | 0.03  | mg/kg | 0.60   | 0.66   | 0.91   | 1.0    | 0.93   |
| Anthracene                            | DETSC 3303  | 0.03  | mg/kg | 0.14   | 0.16   | 0.18   | 0.23   | 0.23   |
| Fluoranthene                          | DETSC 3303# | 0.03  | mg/kg | 1.0    | 0.80   | 1.4    | 1.7    | 1.4    |
| Pyrene                                | DETSC 3303# | 0.03  | mg/kg | 0.97   | 0.76   | 1.3    | 1.6    | 1.4    |
| Benzo(a)anthracene                    | DETSC 3303# | 0.03  | mg/kg | 0.39   | 0.28   | 0.49   | 0.63   | 0.51   |
| Chrysene                              | DETSC 3303  | 0.03  | mg/kg | 0.47   | 0.37   | 0.60   | 0.73   | 0.60   |
| Benzo(b)fluoranthene                  | DETSC 3303# | 0.03  | mg/kg | 0.44   | 0.36   | 0.54   | 0.62   | 0.49   |
| Benzo(k)fluoranthene                  | DETSC 3303# | 0.03  | mg/kg | 0.15   | 0.13   | 0.16   | 0.20   | 0.15   |
| Benzo(a)pyrene                        | DETSC 3303# | 0.03  | mg/kg | 0.38   | 0.30   | 0.45   | 0.66   | 0.41   |
| Indeno(1,2,3-c,d)pyrene               | DETSC 3303# | 0.03  | mg/kg | 0.17   | 0.12   | 0.23   | 0.26   | 0.20   |
| Dibenzo(a,h)anthracene                | DETSC 3303# | 0.03  | mg/kg | 0.05   | 0.04   | 0.06   | 0.05   | 0.04   |
| Benzo(g,h,i)perylene                  | DETSC 3303# | 0.03  | mg/kg | 0.21   | 0.19   | 0.28   | 0.31   | 0.25   |
| PAH - USEPA 16, Total                 | DETSC 3303  | 0.1   | mg/kg | 5.1    | 4.5    | 6.7    | 8.4    | 6.9    |
| <b>Phenols</b>                        |             |       |       |        |        |        |        |        |
| Phenol - Monohydric                   | DETSC 2130# | 0.3   | mg/kg | < 0.3  | < 0.3  | < 0.3  | < 0.3  | < 0.3  |

## Information in Support of the Analytical Results

Our Ref 23-20212  
 Client Ref 6697  
 Contract Greford Road, Llay

### Containers Received & Deviating Samples

| Lab No  | Sample ID    | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|--------------|--------------|---------------------|---------------------------------|-----------------------------------|
| 2223076 | SP1-SS1 SOIL | 21/08/23     | PG                  |                                 |                                   |
| 2223077 | SP1-SS2 SOIL | 21/08/23     | PG                  |                                 |                                   |
| 2223078 | SP1-SS3 SOIL | 21/08/23     | PG                  |                                 |                                   |
| 2223079 | SP1-SS4 SOIL | 21/08/23     | PG                  |                                 |                                   |
| 2223080 | SP1-SS5 SOIL | 21/08/23     | PG                  |                                 |                                   |

Key: P-Plastic G-Bag

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

## Appendix A - Details of Analysis

| Method     | Parameter                                   | Units    | Limit of Detection | Sample Preparation | Sub-Contracted | UKAS | MCERTS |
|------------|---------------------------------------------|----------|--------------------|--------------------|----------------|------|--------|
| DETSC 2002 | Organic matter                              | %        | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2003 | Loss on ignition                            | %        | 0.01               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2008 | pH                                          | pH Units | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2076 | Sulphate Aqueous Extract as SO <sub>4</sub> | mg/l     | 10                 | Air Dried          | No             | Yes  | Yes    |
| DETSC 2084 | Total Organic Carbon                        | %        | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2119 | Ammoniacal Nitrogen as N                    | mg/kg    | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Cyanide free                                | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Cyanide total                               | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Phenol - Monohydric                         | mg/kg    | 0.3                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2130 | Thiocyanate                                 | mg/kg    | 0.6                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Arsenic                                     | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Barium                                      | mg/kg    | 1.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Beryllium                                   | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cadmium Available                           | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cadmium                                     | mg/kg    | 0.1                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Cobalt                                      | mg/kg    | 0.7                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Chromium                                    | mg/kg    | 0.15               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Copper                                      | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Manganese                                   | mg/kg    | 20                 | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Molybdenum                                  | mg/kg    | 0.4                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Nickel                                      | mg/kg    | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Lead                                        | mg/kg    | 0.3                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Selenium                                    | mg/kg    | 0.5                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2301 | Zinc                                        | mg/kg    | 1                  | Air Dried          | No             | Yes  | Yes    |
| DETSC 2311 | Boron (water soluble)                       | mg/kg    | 0.2                | Air Dried          | No             | Yes  | Yes    |
| DETSC 2321 | Total Sulphate as SO <sub>4</sub>           | %        | 0.01               | Air Dried          | No             | Yes  | Yes    |
| DETSC 2325 | Mercury                                     | mg/kg    | 0.05               | Air Dried          | No             | Yes  | Yes    |
| DETSC 3049 | Sulphur (free)                              | mg/kg    | 0.75               | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Ali/Aro C10-C35                             | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C10-C12                           | mg/kg    | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C10-C35                           | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C12-C16                           | mg/kg    | 1.2                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C16-C21                           | mg/kg    | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aliphatic C21-C35                           | mg/kg    | 3.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C10-C12                            | mg/kg    | 0.9                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C10-C35                            | mg/kg    | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C12-C16                            | mg/kg    | 0.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C16-C21                            | mg/kg    | 0.6                | As Received        | No             | Yes  | Yes    |
| DETSC 3072 | Aromatic C21-C35                            | mg/kg    | 1.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Acenaphthene                                | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Acenaphthylene                              | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(a)pyrene                              | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(a)anthracene                          | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(b)fluoranthene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(k)fluoranthene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Benzo(g,h,i)perylene                        | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Dibenzo(a,h)anthracene                      | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Fluoranthene                                | mg/kg    | 0.03               | As Received        | No             | Yes  | Yes    |

## Appendix A - Details of Analysis

| Method     | Parameter                              | Units | Limit of Detection | Sample Preparation | Sub-Contracted | UKAS | MCERTS |
|------------|----------------------------------------|-------|--------------------|--------------------|----------------|------|--------|
| DETSC 3303 | Indeno(1,2,3-c,d)pyrene                | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Naphthalene                            | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Phenanthrene                           | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3303 | Pyrene                                 | mg/kg | 0.03               | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | C10-C24 Diesel Range Organics (DRO)    | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | C24-C40 Lube Oil Range Organics (LORO) | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3311 | EPH (C10-C40)                          | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Benzene                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Ethylbenzene                           | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Toluene                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | Xylene                                 | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | m+p Xylene                             | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3321 | o Xylene                               | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 28 + PCB 31                        | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 52                                 | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 101                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 118                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 153                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 138                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB 180                                | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3401 | PCB Total                              | mg/kg | 0.01               | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Ali/Aro C10-C35                        | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C10-C12                      | mg/kg | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C10-C35                      | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C12-C16                      | mg/kg | 1.2                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C16-C21                      | mg/kg | 1.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aliphatic C21-C35                      | mg/kg | 3.4                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C10-C12                       | mg/kg | 0.9                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C10-C35                       | mg/kg | 10                 | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C12-C16                       | mg/kg | 0.5                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C16-C21                       | mg/kg | 0.6                | As Received        | No             | Yes  | Yes    |
| DETSC 3521 | Aromatic C21-C35                       | mg/kg | 1.4                | As Received        | No             | Yes  | Yes    |

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

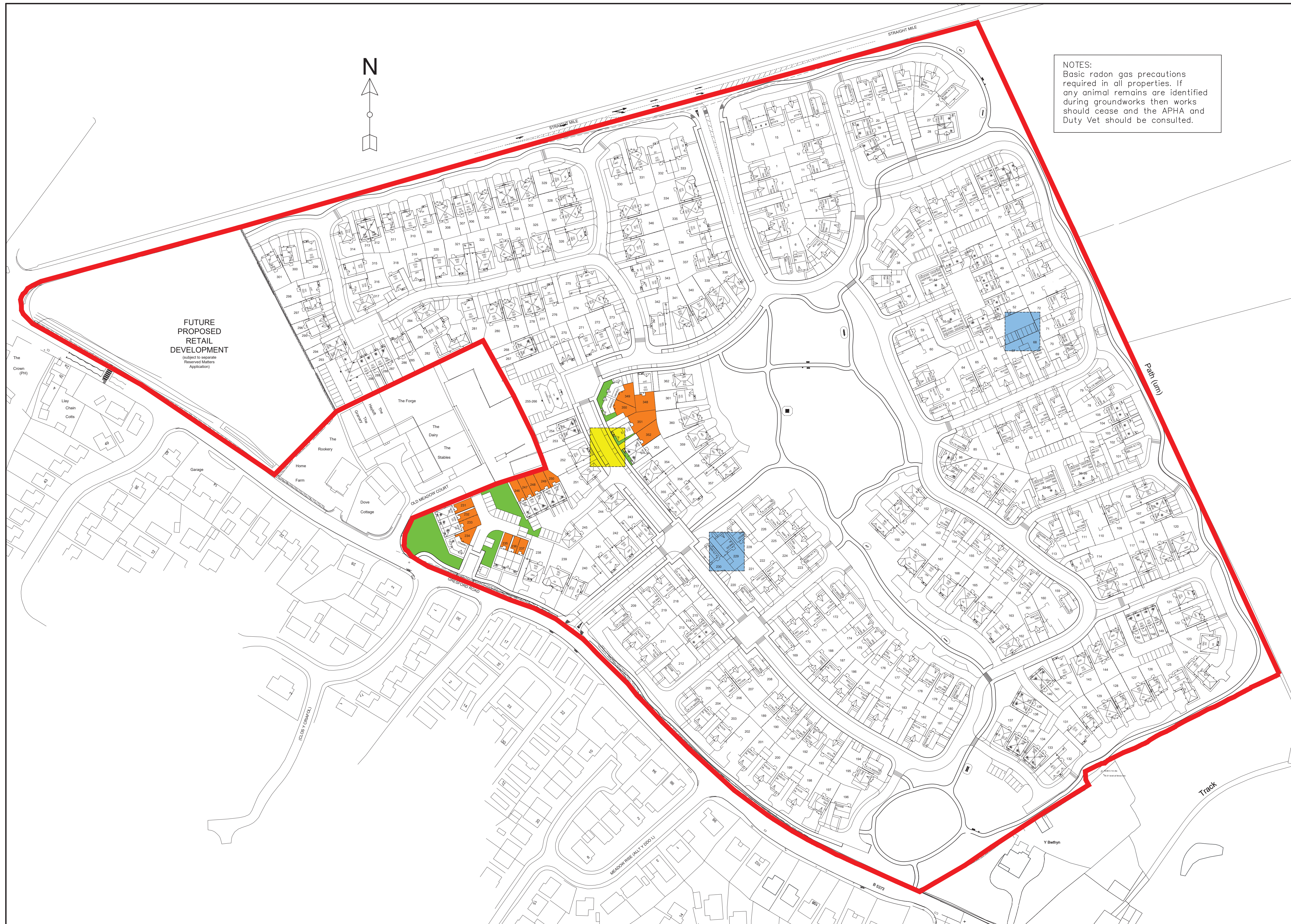
**Assessment Criteria Screening Values taken from REFA Consulting Engineers' "Remediation strategy policy"**

| <b>Table 2: Assessment Criteria Screening Value</b>                                                                                           |                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|                                                                                                                                               | <b>Assessment Criteria (mg/kg)</b> |
| Arsenic                                                                                                                                       | 37 <sup>3</sup>                    |
| Cadmium                                                                                                                                       | 11.0 <sup>3</sup>                  |
| Chromium (total)                                                                                                                              | 910 <sup>3</sup>                   |
| Copper                                                                                                                                        | 2400 <sup>3</sup>                  |
| Lead                                                                                                                                          | 200 <sup>1</sup>                   |
| Mercury                                                                                                                                       | 40 <sup>3</sup>                    |
| Nickel                                                                                                                                        | 180 <sup>3</sup>                   |
| Selenium                                                                                                                                      | 250 <sup>3</sup>                   |
| Zinc                                                                                                                                          | 3700 <sup>3</sup>                  |
| Total Cyanide                                                                                                                                 | 34.0 <sup>2</sup>                  |
| Phenol                                                                                                                                        | 380 <sup>3</sup>                   |
| pH                                                                                                                                            | -                                  |
| SOM                                                                                                                                           | -                                  |
| <sup>1</sup> DEFRA : SP1010 : Category 4 Screening Levels                                                                                     |                                    |
| <sup>2</sup> Atkins Atrisk SSV residential with home grown produce (6% SOM)                                                                   |                                    |
| <sup>3</sup> LQM and CIEH S4UL's for Human Health Risk Assessment (Registration No. S4UL 3265) residential with home grown produce (6.0% SOM) |                                    |
| ND – None Detected                                                                                                                            |                                    |

| <b>Table 3: Assessment Criteria Screening Values Speciated PAH</b>                                                                            |                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
|                                                                                                                                               | <b>Assessment Criteria<sup>1</sup> (mg/kg)</b> |
| Acenaphthene                                                                                                                                  | 1100                                           |
| Acenaphthylene                                                                                                                                | 920                                            |
| Anthracene                                                                                                                                    | 11000                                          |
| Benzo[a]anthracene                                                                                                                            | 13.0                                           |
| Benzo[a]pyrene                                                                                                                                | 5.0 <sup>2</sup>                               |
| Benzo[b]fluoranthene                                                                                                                          | 3.7                                            |
| Benzo[ghi]perylene                                                                                                                            | 350                                            |
| Benzo[k]fluoranthene                                                                                                                          | 100                                            |
| Chrysene                                                                                                                                      | 27.0                                           |
| Dibenz[ah]anthracene                                                                                                                          | 0.30                                           |
| Fluoranthene                                                                                                                                  | 890                                            |
| Fluorene                                                                                                                                      | 860                                            |
| Indeno[123-cd]pyrene                                                                                                                          | 41.0                                           |
| Naphthalene                                                                                                                                   | 13.0                                           |
| Phenanthrene                                                                                                                                  | 440                                            |
| Pyrene                                                                                                                                        | 2000                                           |
| <sup>1</sup> LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM) |                                                |
| <sup>2</sup> DEFRA : SP1010 : Category 4 Screening Levels                                                                                     |                                                |

| <b>Table 4: Assessment Criteria Screening Values TPH (CWG)</b>                                                                                                           |                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>TPH</b>                                                                                                                                                               | <b>Assessment Criteria (mg/kg)</b> |
| Aliphatic EC 5-6                                                                                                                                                         | 160                                |
| Aliphatic EC >6-8                                                                                                                                                        | 530                                |
| Aliphatic EC >8-10                                                                                                                                                       | 150                                |
| Aliphatic EC >10-12                                                                                                                                                      | 760                                |
| Aliphatic EC >12-16                                                                                                                                                      | 4300                               |
| Aliphatic EC >16-35                                                                                                                                                      | 11000                              |
| Aliphatic EC >35-44                                                                                                                                                      | 11000                              |
| Aromatic EC 5-7                                                                                                                                                          | 300                                |
| Aliphatic EC >7-8                                                                                                                                                        | 660                                |
| Aromatic EC >8-10                                                                                                                                                        | 190                                |
| Aromatic EC >10-12                                                                                                                                                       | 380                                |
| Aromatic EC >12-16                                                                                                                                                       | 660                                |
| Aromatic EC >16-21                                                                                                                                                       | 930                                |
| Aromatic EC >21-35                                                                                                                                                       | 1700                               |
| Aromatic EC >35-44                                                                                                                                                       | 1700                               |
| <sup>1</sup> Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM) |                                    |

| <b>Table 5: Assessment Criteria Screening Values BTEX</b>                                                                                                   |                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|                                                                                                                                                             | <b>Assessment Criteria (mg/kg)</b> |
| Benzene                                                                                                                                                     | 0.37                               |
| Toluene                                                                                                                                                     | 660                                |
| EthylBenzene                                                                                                                                                | 260                                |
| M/P Xylenes                                                                                                                                                 | 320                                |
| O Xylene                                                                                                                                                    | 330                                |
| Methyl tert-Butyl Ether                                                                                                                                     | 20 <sup>1</sup>                    |
| Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM) |                                    |
| <sup>1</sup> Atkins Atrisk SSV residential with home grown produce (6% SOM)                                                                                 |                                    |



NOTES:  
Basic radon gas precautions required in all properties. If any animal remains are identified during groundworks then works should cease and the APHA and Duty Vet should be consulted.

KEY

- |                                                                                     |                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Approximate site boundary                                                                                                                                                       |
|  | Front garden landscaped areas where ground levels should be reduced or raised to accommodate 450mm of clean inert capping. Capping should consist of at least 150mm of topsoil. |
|  | Rear garden areas where ground levels should be raised or reduced to allow for at least 600mm of clean inert capping. Capping should consist of at least 150mm of topsoil.      |
|  | Approximate location where animal remains have been identified and will require appropriate disposal in accordance with APHA and Duty Vet guidance.                             |
|  | Approximate areas where landowner has indicated where animal remains may be present but not identified during the site investigation.                                           |

|                                                                                                                                                                                            |                                                          |             |                |              |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------|----------------|--------------|----------|
|                                                                                                                                                                                            |                                                          |             |                |              |          |
| A                                                                                                                                                                                          | REMOVED REQUIREMENTS FOR CAPPING SYSTEM IN PLOTS 271-273 |             |                |              | 20.12.19 |
| revision<br>suffix                                                                                                                                                                         | Revision details                                         |             |                |              | Date     |
|                  |                                                          |             |                |              |          |
| www.smasitd.com                                                                                                                                                                            |                                                          |             |                |              |          |
| Drawing Stage                                                                                                                                                                              |                                                          |             | Drawing Status |              |          |
| ● Draft                                                                                                                                                                                    |                                                          | Comments    |                | ● Tender     |          |
| ● Preliminary                                                                                                                                                                              |                                                          | Information |                | Construction |          |
|                                                                                                                                                                                            |                                                          | Approval    |                | As Built     |          |
| This drawing is not authorised unless signed as checked & approved                                                                                                                         |                                                          |             |                |              |          |
| Client                                                                                                                                                                                     |                                                          |             |                |              |          |
| Anwyl Homes/Bellway Homes                                                                                                                                                                  |                                                          |             |                |              |          |
| Job title                                                                                                                                                                                  |                                                          |             |                |              |          |
| Gresford Road Llay                                                                                                                                                                         |                                                          |             |                |              |          |
| Drawing title                                                                                                                                                                              |                                                          |             |                |              |          |
| Remediation Plan                                                                                                                                                                           |                                                          |             |                |              |          |
| <br><b>(CONSULTING ENGINEERS)</b><br><b>CIVIL • STRUCTURAL</b><br><b>GEOTECHNICAL • ENVIRONMENTAL</b> |                                                          |             |                |              |          |
| 45 Bridgeman Terrace Wigan, Lancs WN1 1TT Tel:-(01842) 826200 Fax:-(01942) 230816                                                                                                          |                                                          |             |                |              |          |
| Chkd                                                                                                                                                                                       | Appvd                                                    | date        | scale          | dwn          | rev      |
|                                                                                                                                                                                            |                                                          | 20.12.19    | 1:1000@A1      | AP           | A        |
| DRAWING No                                                                                                                                                                                 |                                                          | 17040/25    |                |              |          |
| (C) This drawing is the property of REFA and should not be copied used or its contents divulged without prior written consent                                                              |                                                          |             |                |              |          |
| Any discrepancies to this drawing discovered on site should be reported to REFA immediately. IF IN DOUBT ASK!                                                                              |                                                          |             |                |              |          |