

## BOREHOLE LOG

|                                                |                  |                            |                                            |                              |  |
|------------------------------------------------|------------------|----------------------------|--------------------------------------------|------------------------------|--|
| Project<br>3-5 Newells, Letchworth Garden City |                  |                            |                                            | BOREHOLE No<br><b>GWS104</b> |  |
| Job No<br>2247                                 | Date<br>07-02-24 | Ground Level (m)<br>106.63 | Co-Ordinates ()<br>E 523,693.0 N 232,042.0 |                              |  |
| Contractor<br>Oakland SI Ltd                   |                  |                            |                                            | Sheet<br>1 of 1              |  |

| SAMPLES & TESTS |         |             | STRATA |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               | Geology                                                                             | Instrument/<br>Backfill                                                             |        |
|-----------------|---------|-------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
| Depth           | Type No | Test Result | Water  | Reduced Level                                                                     | Legend                                                                            | Depth (Thick-ness)                                                                                                                                                       | DESCRIPTION                                                                                                                                                   |                                                                                     |                                                                                     |        |
| 0.10            | E1      | N23         |        | 106.38                                                                            |  | 0.25                                                                                                                                                                     | Dark brown clayey TOPSOIL with occasional roots and rootlets and rare gravel of fine to medium subangular to subrounded flint and rare fine brick fragments.  |                                                                                     |  |        |
| 0.40            | E2      |             |        |  | (1.40)                                                                            | [REWORKED]<br>Firm, becoming stiff with depth, brown mottled yellowish brown slightly gravelly CLAY. Gravel was fine to medium subangular to subrounded flint and chalk. |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 0.50-0.60       | D1      |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 1.00-1.45       | SPT1    |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 1.00            | E3      |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 1.00            | D2      |             | 104.98 |  | 1.65                                                                              | Stiff greyish brown slightly sandy gravelly CLAY. Gravel was fine to medium subrounded to rounded chalk and rare flint.                                                  |                                                                                                                                                               |  |                                                                                     |        |
| 1.10-1.30       |         |             |        | 104.63                                                                            |  |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     | 2.00                                                                                |        |
| 1.70-1.90       |         |             | D3     |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 2.00-2.45       | SPT2    | N17         |        |                                                                                   |  |                                                                                                                                                                          | Structureless white weathered CHALK composed of firm friable slightly sandy gravelly clay. Gravel was fine to medium subrounded weak chalk.<br><br>(Grade Dm) |                                                                                     |  |        |
| 2.00            | D4      |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 2.20-2.40       |         |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 2.80-3.00       | D5      | N16         |        |                                                                                   |  |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |  |        |
| 3.00-3.45       | SPT3    |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 3.00            | D6      |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 3.40-3.60       |         |             | (3.45) |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 4.00-4.45       |         |             |        | SPT4                                                                              |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 4.00            | N20     |             |        |                                                                                   |                                                                                   |                                                                                         |                                                                                                                                                               |                                                                                     |  |        |
| 4.30-4.50       |         | D7          |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 4.70-5.00       |         | D8          |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     |        |
| 5.00-5.45       | SPT5    | N21         |        |                                                                                   |  |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |  |        |
| 5.00            |         |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          |                                                                                                                                                               |                                                                                     |                                                                                     | 101.18 |
|                 |         |             |        |                                                                                   |                                                                                   |                                                                                                                                                                          | END OF BOREHOLE AT 5.45 MBGL.                                                                                                                                 |                                                                                     |                                                                                     |        |

| Boring Progress and Water Observations |      |       |                   |                |           | Chiselling                               |    |       | Water Added         |    | GENERAL REMARKS             |
|----------------------------------------|------|-------|-------------------|----------------|-----------|------------------------------------------|----|-------|---------------------|----|-----------------------------|
| Date                                   | Time | Depth | Casing Depth      | Casing Dia. mm | Water Dpt | From                                     | To | Hours | From                | To |                             |
|                                        |      |       |                   |                |           |                                          |    |       |                     |    | No groundwater encountered. |
| All dimensions in metres<br>Scale 1:50 |      |       | Client SPD Studio |                |           | Method/<br>Plant Used Premier 110 WS Rig |    |       | Logged By<br>S.C.S. |    |                             |

## BOREHOLE LOG

|                                                |                  |                            |                                            |                              |  |
|------------------------------------------------|------------------|----------------------------|--------------------------------------------|------------------------------|--|
| Project<br>3-5 Newells, Letchworth Garden City |                  |                            |                                            | BOREHOLE No<br><b>GWS105</b> |  |
| Job No<br>2247                                 | Date<br>07-02-24 | Ground Level (m)<br>106.63 | Co-Ordinates ()<br>E 523,687.0 N 232,046.0 |                              |  |
| Contractor<br>Oakland SI Ltd                   |                  |                            |                                            | Sheet<br>1 of 1              |  |

| SAMPLES & TESTS |         |             | STRATA |               |                                                                                   |                                                                                   |                                                                                                                                                                             | Geology                                                                                                                                                        | Instrument/<br>Backfill                                                             |                                                                                     |
|-----------------|---------|-------------|--------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Depth           | Type No | Test Result | Water  | Reduced Level | Legend                                                                            | Depth (Thick-ness)                                                                | DESCRIPTION                                                                                                                                                                 |                                                                                                                                                                |                                                                                     |                                                                                     |
| 0.20            | E1      | N11         |        | 106.58        |  | 0.05                                                                              | MADE GROUND (Concrete slab).                                                                                                                                                |                                                                                                                                                                |  |                                                                                     |
|                 |         |             |        | 106.48        |                                                                                   | 0.15                                                                              | MADE GROUND (Yellow fine and medium sand).                                                                                                                                  |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        | 106.18        |                                                                                   | 0.45                                                                              | MADE GROUND (Soft brown slightly sandy CLAY with rare roots and rare fine and medium gravel of flint. Rare organic material).                                               |                                                                                                                                                                |                                                                                     |                                                                                     |
| 0.60            | E2      |             |        | D1            |                                                                                   |  | (0.55)                                                                                                                                                                      |                                                                                                                                                                |                                                                                     |                                                                                     |
| 0.70-0.80       |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
| 1.00-1.20       | D2      |             |        | 105.63        |  | 1.00                                                                              | [REWORKED]                                                                                                                                                                  |                                                                                                                                                                |                                                                                     |                                                                                     |
| 1.00            |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
| 1.80-2.00       | D3      |             |        | N56           |                                                                                   |  | (1.00)                                                                                                                                                                      | Firm yellowish brown occasionally mottled greyish brow slightly gravelly CLAY. Gravel was fine to coarse subangular and subrounded chalk and occasional flint. |                                                                                     |  |
| 2.00            |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        | 104.63        |  | 2.00                                                                              | Firm greyish brown mottled orangish brown and grey slightly gravelly CLAY. Gravel was fine and medium occasionally coarse angular to subrounded chalk and occasional flint. |                                                                                                                                                                |  |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        | 104.18        |  | (0.45)<br>2.45                                                                    | Structureless white occasionally mottled orangish brown weathered chalk composed of firm friable gravelly clay. Gravel was very weak low density chalk.                     |                                                                                                                                                                |  |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   |                                                                                                                                                                             |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   | (Grade Dm)                                                                                                                                                                  |                                                                                                                                                                |                                                                                     |                                                                                     |
|                 |         |             |        |               |                                                                                   |                                                                                   | BOREHOLE REFUSED AT 2.45 MBGL.                                                                                                                                              |                                                                                                                                                                |                                                                                     |                                                                                     |

| Boring Progress and Water Observations |      |       |                   |                |           | Chiselling                               |    |       | Water Added         |    | GENERAL REMARKS             |
|----------------------------------------|------|-------|-------------------|----------------|-----------|------------------------------------------|----|-------|---------------------|----|-----------------------------|
| Date                                   | Time | Depth | Casing Depth      | Casing Dia. mm | Water Dpt | From                                     | To | Hours | From                | To |                             |
|                                        |      |       |                   |                |           |                                          |    |       |                     |    | No groundwater encountered. |
| All dimensions in metres<br>Scale 1:50 |      |       | Client SPD Studio |                |           | Method/<br>Plant Used Premier 110 WS Rig |    |       | Logged By<br>S.C.S. |    |                             |

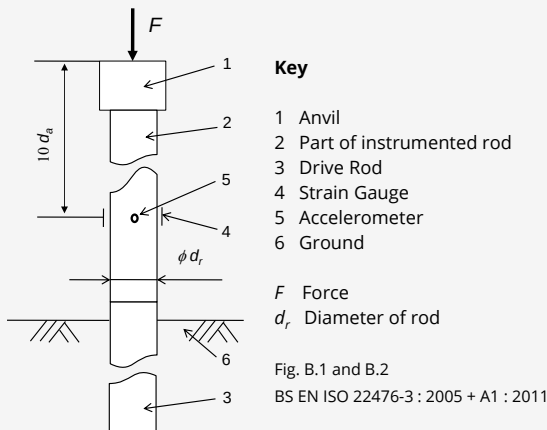
# SPT Calibration Report

## Hammer Energy Measurement Report

Type of Hammer Premier 110  
Test No EQU2023\_105  
Client Oakland SI

Test Depth (m) 11.70  
Mass of hammer  $m = 63.5\text{kg}$   
Falling height  $h = 0.76\text{m}$   
 $E_{\text{theor}} = m \times g \times h = 473\text{J}$

### Characteristics of the instrumented rod



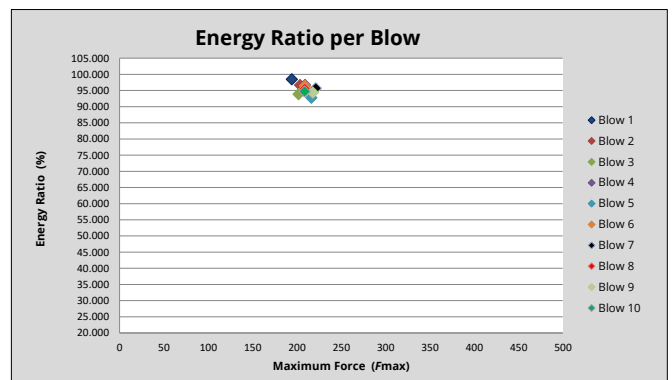
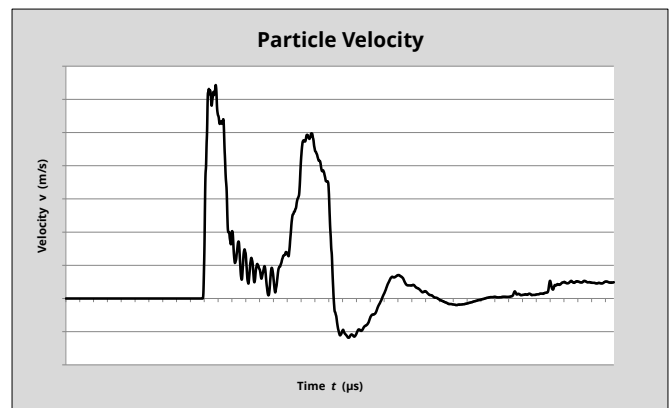
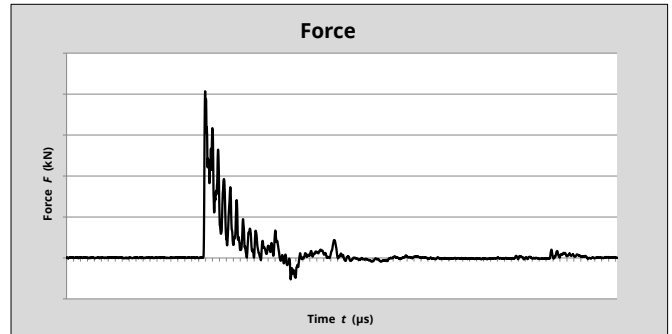
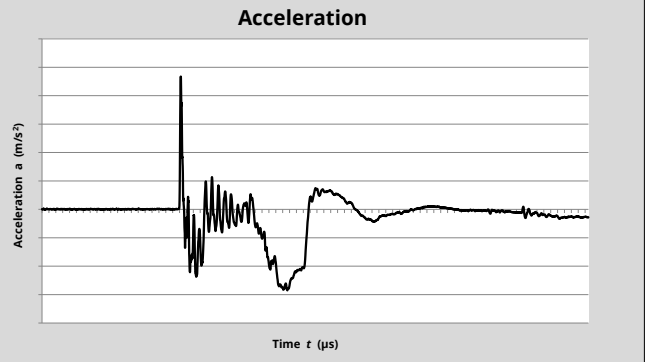
Diameter  $d_r = 0.052\text{ m}$   
Length of instrumented rod  $0.558\text{ m}$   
Area  $A = 11.61\text{ cm}^2$   
Modulus  $E_a = 206843\text{ MPa}$

| DATE OF TEST | VALID UNTIL | HAMMER ID |
|--------------|-------------|-----------|
| 12/06/2023   | 11/06/2024  | 07        |

$E_{\text{meas}} = 0.452\text{ kN-m}$

$E_{\text{theor}} = 0.473\text{ kN-m}$

Comments



$$\text{Energy Ratio (Er)} = \frac{E_{\text{meas}}}{E_{\text{theor}}}$$

**95.58%**  
© COPYRIGHT 2023

Equipe SPT Analyzer Operator

**AF**

Certificate prepared by

*Equipe*

Certificate checked by

*Equipe*

Certificate date

**19/06/2023**

## KEY SHEET FOR EXPLORATORY HOLE LOGS

### i. Introduction

The following explanatory notes define the terminologies, abbreviations and symbols pertaining to each individual column or section of the Exploratory Hole records. 'Exploratory Hole' is used as a general term in this report to comprise borehole, drill hole, and trial pit. All exploratory hole records have been produced using 'gINT®' – an integrated software environment for the storage and manipulation of subsurface data.

The primary purpose of ground investigation exploratory holes is to probe the stratified sequences of soil and/or rock. From the results of these probings no conclusion should be drawn concerning the presence of size, lithological nature and numbers per unit volume of ground of cobbles and boulders in soil types such as glacial till (boulder clay).

### ii. Exploratory Hole Records

#### ***Exploratory Hole Number***

The identity number used throughout the report.

#### ***Project***

The ground investigation project name. Occasionally the project name may be shortened or abbreviated due to string length restraints imposed by the gINT® computer programme.

#### ***Client***

Client's name responsible for funding the ground investigation project. The Client's name may be shortened or abbreviated due to string length restraints imposed by the gINT® computer programme.

#### ***Co-Ordinates (NGR)***

The exploratory hole position given as either national grid co-ordinates, local grid if specified, or a reference name normally pertaining to the area of investigation. The co-ordinates are given as indicative only and may or may not be based on surveyed locations. Co-ordinates taken with hand held GPS are only as accurate as the instrument used which can be up to +/- 10m. They should not be used as fixed point for setting out purposes.

#### ***Method/Plant Used***

Represents the drilling, excavation or boring method(s) or equipment used.

#### ***Ground Level (m AOD)***

The ground level in metres above Ordnance Datum at the exploratory hole location from which the reduced level for each stratigraphic boundary is calculated.

#### ***Date***

The date relating to the start of the exploratory hole excavation.

#### ***Sheet***

The sheet number and total number of sheets for the particular record.

#### ***Checked By***

Initials of the person who has carried out the technical quality check on the log.

### **Logged By**

Initials of the engineer who has carried out the logging of the exploratory hole.

### **Job No**

The GEMCO reference number for the project.

### **Contractor**

The name of the contractor carrying out the drilling/excavation works.

## **iii. Borehole and Window/Windowless Sample Hole Records**

### **Sample & Tests Columns**

|             |                                                                                                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|
| Depth       | The depth over which a sample or test is taken is shown in depth column of the exploratory hole record in a "from...to" format |
| Type No     | Indicates the type of sample/test and number given by the driller                                                              |
| Test Result | Result of the test given in the applicable units                                                                               |

### **Water Column**

|                                                                                     |                                                                                         |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Water Strike                                                                        | Level of groundwater strike within an exploratory hole                                  |
|  | Denotes a water strike and is suffixed with a number, which indicates the strike order. |
|  | The corresponding unfilled symbol is the depth the strike rose to.                      |

### **Strata Column**

|                   |                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Reduced Level     | The corresponding reduced level of each soil or rock boundary in metres Ordnance Datum                                                           |
| Legend            | A graphical representation of the materials encountered using BS 5930:2015 recommended symbols for soil and rock                                 |
| Depth (Thickness) | The depth below ground level of each soil or rock boundary in metres and the thickness of each individual stratigraphic unit (given in brackets) |
| Description       | Engineering description of each individual soil or rock type.                                                                                    |

Descriptions follow recommendations outlined in Section 6 of BS 5930:2015 with the following implementation:

- Section 6 incorporates the guidance indicated in BS EN ISO 14688-1:2002+A1:2013, BS EN ISO 14688-2:2004+A1:2013 and BS EN ISO 14689-1:2003 European Standard with particular emphasis on current UK practice.*
- Supplementary laboratory or in-situ assessed measurements of undrained strength are provided where applicable information is available in parenthesis in accordance with clause 41: BS5930:2015 after the field strength determined consistency. The description-based measurement table indicating the quantitative undrained strength classification divisions is provided in Key Sheets Table 1.*

| Key Sheets Table 1: Undrained strength classification |                                                       |
|-------------------------------------------------------|-------------------------------------------------------|
| Term based on measurement                             | Undrained strength classification definition cu (kPa) |
| Extremely low                                         | <10                                                   |
| Very low                                              | 10-20                                                 |
| Low                                                   | 20-40                                                 |
| Medium                                                | 40-75                                                 |
| High                                                  | 75-150                                                |
| Very high                                             | 150-300                                               |
| Extremely high                                        | 300-600                                               |

3. Cobble and boulder content are expressed in accordance with the terms provided in EN ISO 14688-2: 2004 where visually identified in trial pit excavations, or inferred/recovered during the drilling operations. The assessment of frequency and spatial occurrence of coarse and very coarse rock material should not be considered as precise, but only an indicator or estimate of the potential conditions. It should be noted that the recovery of coarse or very coarse particles in boreholes is dependent on the limitations imposed by the casing diameter. The terminology used is outlined in Key Sheets Table 2.

| Key Sheets Table 2: Very coarse fractions |                     |                        |
|-------------------------------------------|---------------------|------------------------|
| Fraction                                  | Percent by Mass (%) | Term                   |
| Boulders                                  | <5                  | Low boulder content    |
|                                           | 5-20                | Medium boulder content |
|                                           | >20                 | High boulder content   |
| Cobbles                                   | <10                 | Low boulder content    |
|                                           | 10-20               | Medium cobble content  |
|                                           | >20                 | High cobble content    |

4. Where 'rock weathering classification' can be applied it is 'Approach 4' which will be used. If any other approach is used the factual text of the report will provide details of the applicable specific approach. (Ref: Figure 9, Clause 36.4.2 BS 5930:2015). An outline of the 'Approach 4' rock weathering classification scheme is provided as Key Sheets Table 3

| Key Sheets Table 3: Approach 4 Classification Incorporating Material and Mass Features |                      |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class                                                                                  | Classifier           | Typical characteristics                                                                                                                                                    |
| A                                                                                      | Unweathered          | Original strength, colour, fracture spacing                                                                                                                                |
| B                                                                                      | Partially            | Slightly reduced strength, slightly closer fracture spacing, weathering penetrating in from fractures, brown oxidation                                                     |
| C                                                                                      | Distinctly weathered | Further weathered, much closer fracture spacing grey reduction                                                                                                             |
| D                                                                                      | 209294               | Greatly weakened, mottled, ordered lithorelics in matrix becoming weakened and disordered, bedding disturbed.                                                              |
| E                                                                                      | Residual or reworked | Matrix with occasional altered random or 'apparent' lithorelics, bedding destroyed. Classed as reworked when foreign inclusions are present as a result of transportation. |

5. Rock Strength based on assessed field or measured unconfined compressive strength follows the classification scheme given in clause 36.2.1 BS5930:2015 as outlined in Key Sheets Table 4.

| Key Sheets Table 4: In-field strength test                                                         |                                                                                                                              |                                                                          |                                                                       |                                                           |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|
| Term for use in field or based on measurement                                                      | Definition for field use                                                                                                     | Definition on basis of Unconfined Compressive Strength measurement (MPa) | Old Classification of rock strength: Terminology (Strength Range MPa) | Old Classification of rock strength: Determination Method |
| Extremely weak                                                                                     | Can be indented by thumbnail. Gravel sized lumps crush between finger and thumb.                                             | 0.6-1.0                                                                  | Very weak (<1.25)                                                     | Lumps can be crushed between fingers.                     |
| Very weak                                                                                          | Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife.                                  | 1-5                                                                      | Weak (1.25-5)                                                         | Lumps can be broken with heavy hand pressure.             |
| Weak                                                                                               | Can be peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with the point of geological hammer. | 5-25                                                                     | Moderately weak (5-12.50)                                             | This slab can be broken with heavy pressure.              |
| Medium strong                                                                                      | Cannot be scraped with pocket knife. Can be fractured with a single firm blow of geological hammer.                          | 25-50                                                                    | Moderately strong (12.50-50)                                          | Rock can be broken in the hand with a hammer.             |
| Strong                                                                                             | Requires more than one blow of geological hammer to fracture.                                                                | 50-100                                                                   | Strong (50-100)                                                       | Rock can be broken on a flat surface using a hammer.      |
| Very strong                                                                                        | Requires many blows of geological hammer to fracture.                                                                        | 100-250                                                                  | Very strong (100-200)                                                 | Rock chipped by blows with a hammer.                      |
| Extremely strong                                                                                   | Can only be chipped with geological hammer.                                                                                  | >250                                                                     | Extremely strong (>200)                                               | Rock rings when hit with a hammer.                        |
| Based on BS EN ISO 14689-1:2003 4.2.7, Table 5 (and presented at Table 25 of BS5930:2015 Table 25) |                                                                                                                              |                                                                          | BS5930:1999 – Section 6                                               |                                                           |

**Instrument/Backfill Column**

A graphical representation of backfill material or instrumentation detail using graphic legends. Its placement in the column is relative to depth in metres and corresponds to the exploratory hole in scale.

**Boring Progress and Water Observations Columns**

This section provides information on each day's production as a daily log.

|             |                                                               |
|-------------|---------------------------------------------------------------|
| Date        | Date of shift                                                 |
| Depth       | Depth of hole at the start of the shift                       |
| Casing      | Casing's depth at the start of the shift                      |
| Casing Dia. | Casing's diameter at the start of the shift                   |
| Water Depth | Water level within the borehole at the start and end of shift |

**Chiselling Columns**

Indicates where hard strata occurred and breaking out was required to advance the borehole.

|       |                                 |
|-------|---------------------------------|
| From  | The depth commenced             |
| To    | The depth finished              |
| Hours | The time spent for breaking out |

**Water Added Columns**

Indicates the depth range where water was added to the borehole facilitate boring or to prevent stress relief disturbance 'blowing/boiling' in granular soils.

|      |                                            |
|------|--------------------------------------------|
| From | Depth in metres from where water was added |
| To   | Depth in metres to where water was added   |

**General Remarks**

Any remarks believed to be relevant to the exploratory hole, e.g., groundwater strike.

**iv. Trial Pit/Trench Records**

The pit/trench records follow the same format as the borehole and window/windowless sample hole records for the Samples & Tests, Water and Strata columns. In addition to these there are also the following:

**Plan**

A schematic plan view of the pit showing its excavated dimensions together with its orientation, given as a compass bearing to magnetic north.

**Groundwater**

Notes on water bearing horizons.

**Stability**

The engineer's comments outlining the stability of the sides during pit excavation.

**General Remarks**

The engineer's comments of any other information relevant to construction of the pit.

**Additional Information**

An indication if a sketch and/or photographs accompanies the record.

## **v. Drillhole Records and Rotary Continuation**

### ***Run Details Columns***

|                |                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth          | Each drill run is highlighted by a horizontal line with the top and bottom depths shown in metres. Core diameter (C Dia.) is presented also within each run |
| TCR (SCR) RQD  | Information provided on the total core recovery, solid core recovery and rock quality designation. Refer to Abbreviations for further details               |
| Fracture Index | Information given relating to the fracture index of the rock                                                                                                |

### ***Strata Columns***

As the strata columns for borehole and window/windowless sample hole records except for description which is as follows:

|                        |                                                                                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discontinuities detail | Information on core discontinuities, localized variations in weathering, lithology, strength and structure follows recommendations outlined in Section 6 BS 5930:2015 Clause 36.4.3. |
| Main                   | Engineering description of each individual soil or rock type follows recommendations outlined in Section 6 of BS 5930:2015                                                           |

### ***Instrument/Backfill Column***

A graphical representation of backfill material or instrumentation detail using graphic legends. Its placement in the column is relative to depth in metres and corresponds to the exploratory hole in scale.

### ***Drilling Progress and Water Observations Column***

|                |                                                                 |
|----------------|-----------------------------------------------------------------|
| Date           | Date of shift                                                   |
| Depth          | Depth of hole at the start of the shift                         |
| Casing         | Casing's depth at the start of the shift                        |
| Water Strike   | Depth at which water was encountered                            |
| Water Standing | Depth at which water in the hole levelled off                   |
| Water Remarks  | Any remarks believed to be relevant to the water e.g., Artesian |

### ***Standard Penetration Test***

|        |                                         |
|--------|-----------------------------------------|
| Depth  | The depth commenced                     |
| Type   | Type of standard penetration test (SPT) |
| Result | Result of SPT                           |

### ***Flush***

|         |                                                                                                |
|---------|------------------------------------------------------------------------------------------------|
| From    | The depth commenced                                                                            |
| To      | The depth finished                                                                             |
| Type    | Details of the type of flush used:<br>A = Air;<br>F = Foam;<br>W = Water; and<br>Pol = Polymer |
| Returns | An indication of the percentage of the returned flush material                                 |

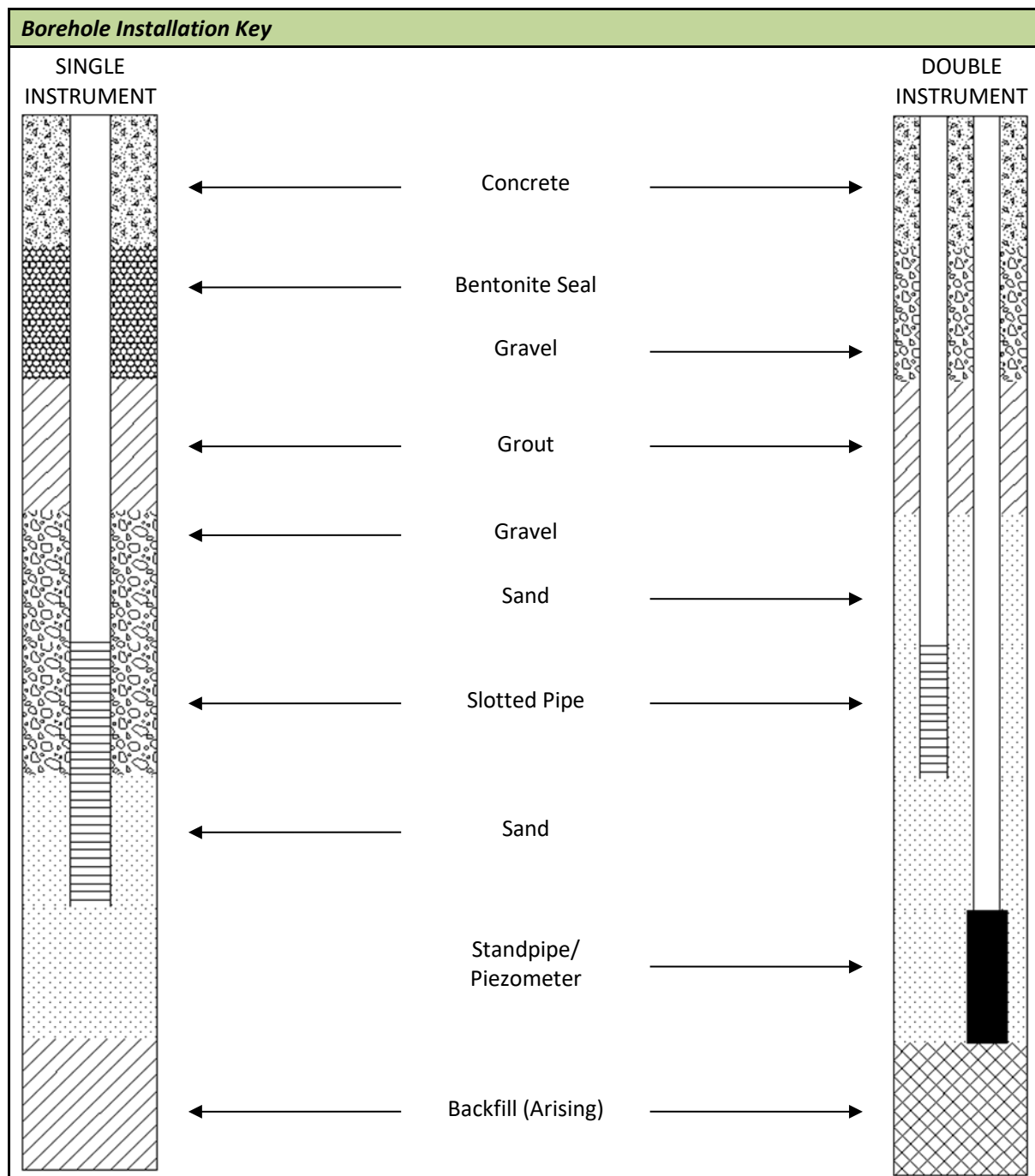
### ***General Remarks***

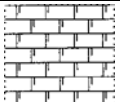
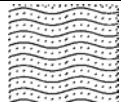
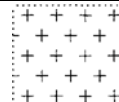
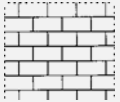
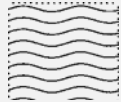
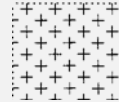
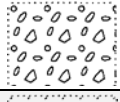
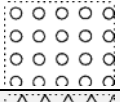
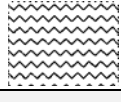
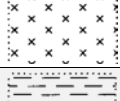
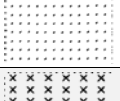
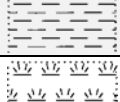
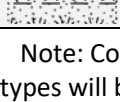
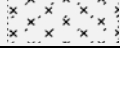
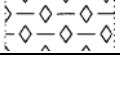
Any remarks believed to be relevant to the exploratory hole

## vi. Abbreviations

| <b>Samples</b>                        |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B                                     | Bulk disturbed sample.                                                                                                                                                                                                                                                                                                       |
| D                                     | Small disturbed sample.                                                                                                                                                                                                                                                                                                      |
| ES                                    | Environmental soil sample.                                                                                                                                                                                                                                                                                                   |
| EW                                    | Environmental water sample.                                                                                                                                                                                                                                                                                                  |
| G                                     | Gas sample.                                                                                                                                                                                                                                                                                                                  |
| LB                                    | Large bulk disturbed sample.                                                                                                                                                                                                                                                                                                 |
| P                                     | Piston sample.                                                                                                                                                                                                                                                                                                               |
| P*                                    | An attempted but failed undisturbed piston sample.                                                                                                                                                                                                                                                                           |
| U                                     | Undisturbed sample.                                                                                                                                                                                                                                                                                                          |
| U*                                    | An attempted but failed general purpose undisturbed sample.                                                                                                                                                                                                                                                                  |
| W                                     | Water sample.                                                                                                                                                                                                                                                                                                                |
| <b>In-Situ Tests</b>                  |                                                                                                                                                                                                                                                                                                                              |
| CBR                                   | California Bearing Ratio mould sample or test.                                                                                                                                                                                                                                                                               |
| FID                                   | Flame ionisation detector test.                                                                                                                                                                                                                                                                                              |
| HSV                                   | In-situ hand shear vane.                                                                                                                                                                                                                                                                                                     |
| HP                                    | Hand penetrometer test.                                                                                                                                                                                                                                                                                                      |
| K (C)                                 | Constant head permeability test.                                                                                                                                                                                                                                                                                             |
| K (F)                                 | Falling head permeability test.                                                                                                                                                                                                                                                                                              |
| K (P)                                 | Packer permeability test.                                                                                                                                                                                                                                                                                                    |
| K (R)                                 | Rising head permeability test.                                                                                                                                                                                                                                                                                               |
| PT                                    | Pressure meter test.                                                                                                                                                                                                                                                                                                         |
| PID                                   | Photo ionisation detector test.                                                                                                                                                                                                                                                                                              |
| S                                     | Standard Penetration Test (SPT) using the split barrel sampler (shoe). The corresponding uncorrected 'N' value is given in the test result column with more detailed information provided in the In-Situ Testing Enclosures where applicable. Testing has been conducted in accordance with BS EN ISO 22476-3: 2005+A1:2011. |
| C                                     | Denotes SPT test using a solid cone in preference to the split barrel sampler (usually in coarse granular soil) with all other reporting requirements as outlined above for the split barrel sampler.                                                                                                                        |
| S*/C*                                 | Denotes where full penetration has not been achieved during the SPT test. In such cases the penetration per blow is recorded in the test result column.                                                                                                                                                                      |
| SV                                    | In-situ down-the-hole shear vane test. The remoulded shear strength is given in brackets.                                                                                                                                                                                                                                    |
| <b>Rock Quality and Core Recovery</b> |                                                                                                                                                                                                                                                                                                                              |
| TCR                                   | Total Core Recovery - the length of the recovered core expressed as a percentage of the length of core run.                                                                                                                                                                                                                  |
| SCR                                   | Solid Core Recovery - the sum length of all core pieces that are recovered with at least one full diameter, expressed as a percentage of the length of core run.                                                                                                                                                             |
| RQD                                   | Rock Quality Designation - The sum length of all core pieces that are 100mm or longer (measured along the centre of the core), expressed as a percentage of the length of core run.                                                                                                                                          |
| FI                                    | Fracture Index - The number of fractures per 1000mm length of solid core.                                                                                                                                                                                                                                                    |
| NI                                    | Non-intact - The material recovered in a non-intact state.                                                                                                                                                                                                                                                                   |
| NR                                    | No recovery from the core run.                                                                                                                                                                                                                                                                                               |

vii. Symbols



| <b>Graphical Log Key</b>                                                            |                      |                                                                                     |                            |                                                                                   |                |                                                                                     |                |
|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|----------------|
| <b>Soils</b>                                                                        |                      | <b>Sedimentary Rock</b>                                                             |                            | <b>Metamorphic Rock</b>                                                           |                | <b>Igneous Rock</b>                                                                 |                |
|    | Made Ground          |    | Chalk                      |  | Coarse Grained |  | Coarse Grained |
|    | Cobbles and Boulders |    | Limestone                  |  | Medium Grained |  | Medium Grained |
|    | Gravel               |    | Conglomerate               |  | Fine Grained   |  | Fine Grained   |
|    | Sand                 |    | Breccia                    |                                                                                   |                |                                                                                     |                |
|    | Silt                 |    | Sandstone                  |                                                                                   |                |                                                                                     |                |
|   | Clay                 |   | Siltstone                  |                                                                                   |                |                                                                                     |                |
|  | Peat                 |  | Mudstone                   |                                                                                   |                |                                                                                     |                |
|  | Topsoil              |  | Shale                      |                                                                                   |                |                                                                                     |                |
| Note: Composite soil types will be signified by combined symbols e.g.,              |                      |  | Coal                       |                                                                                   |                |                                                                                     |                |
|  | Silty Sand           |  | Pyroclastic (Volcanic Ash) |                                                                                   |                |                                                                                     |                |
|                                                                                     |                      |  | Gypsum                     |                                                                                   |                |                                                                                     |                |

#### viii. Cross Sections

##### **Symbols on Cross Sections**

— · — · — · — · — · — Top of Capping Layer

————— Top of Landfill (Bottom landfill layer where applicable)

----- Groundwater Level

## **Appendix 8**

### **BRE 365 Infiltration Test Data and Calculations**

Project Name: 3-5 Newells  
Location: Newells, Letchworth Garden City  
Project Ref: 2247 R01  
Date Started: 06-Feb-24  
Date Finished: 07-Feb-24  
Test Location: **GSA101** **Test 1**

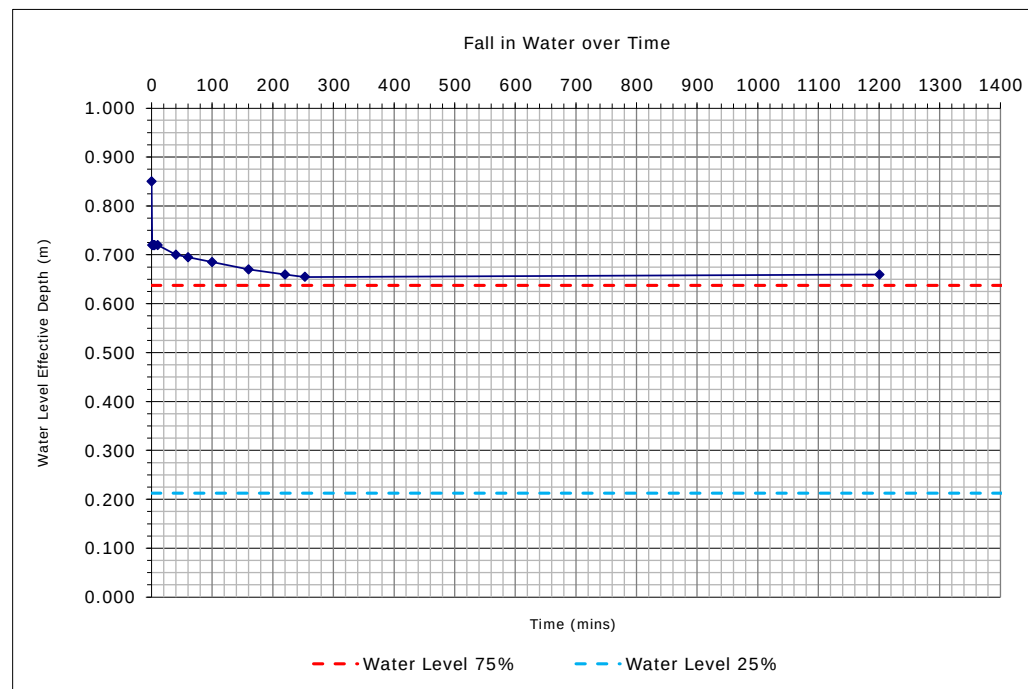
### Trial Pit Dimensions

|                  |       |   |                |       |   |
|------------------|-------|---|----------------|-------|---|
| Top Length:      | 2.40  | m | Top Width:     | 0.50  | m |
| Bottom Length:   | 1.60  | m | Bottom Width:  | 0.50  | m |
| Effective Depth: | 0.850 | m | 50% Eff Depth: | 0.425 | m |

**Trial Pit Depth:**  
**Water Level Before Test Start:**  
**Gravel Size Used:**  
**Top of Gravel Pack:**  
**Stick-up:**

|      |      |
|------|------|
| 2.70 | m    |
| DRY  |      |
| 20   | mm   |
| 1.85 | mbgl |
| 0.00 | m    |

|                 |       |                |
|-----------------|-------|----------------|
| $a_{s50}$       | 3.265 | m <sup>2</sup> |
| Gravel Factor   | 0.35  |                |
| $V_{p75-25}$    | 0.119 | m <sup>3</sup> |
| Water Level 75% | 0.638 | m              |
| Water Level 25% | 0.213 | m              |
| TIME 75% Eff D  | 0.0   | mins           |
| TIME 25% Eff D  | 0.0   | mins           |
| TIME 75% Eff D  | 0.0   | sec            |
| TIME 25% Eff D  | 0.0   | sec            |
| $t_{p25-75}$    | 0.0   | sec            |

[illegible]

|                               |
|-------------------------------|
| Infiltration Rate (F) (m / s) |
| TEST FAILED                   |
|                               |

### Extrapolated Data

Calculated Field

**Data Entry Required**

Value Taken from graph at 25% and 75%

| Remarks |
|---------|
|         |

- |         |                                                                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remarks | <p>1. Test undertaken in general accordance with BRE Digest 365.</p> <p>2. Trial pit was backfilled with 20mm aggregate.</p> <p>3. Stability was good with no collapse.</p> |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Notes

$$\text{Soil Infiltration Rate (F)} = V_{p75-25} / (a_{s50} \times t_{p25-75})$$

where:

$V_{p75-25}$  = Effective volume of water in the pit between 75% and 25% effective depth.

$a_{50}$  = Internal surface area of pit up to 50% effective depth and including base area.

$t_{p25-75}$  = Time for water to fall from 75% to 25% effective depth.

Project Name: 3-5 Newells  
Location: Newells, Letchworth Garden City  
Project Ref: 2247 R01  
Date Started: 06-Feb-24  
Date Finished: 07-Feb-24  
Test Location: **GSA102** **Test 1**

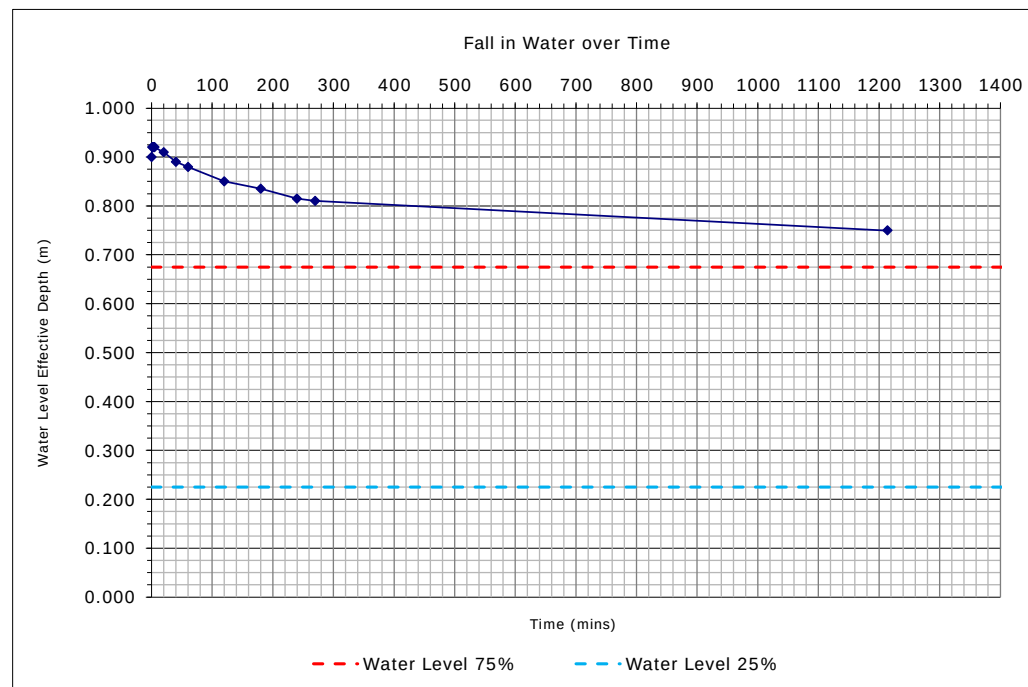
### Trial Pit Dimensions

|                  |       |   |                |       |   |
|------------------|-------|---|----------------|-------|---|
| Top Length:      | 2.00  | m | Top Width:     | 0.50  | m |
| Bottom Length:   | 1.40  | m | Bottom Width:  | 0.50  | m |
| Effective Depth: | 0.900 | m | 50% Eff Depth: | 0.450 | m |

**Trial Pit Depth:**  
**Water Level Before Test Start:**  
**Gravel Size Used:**  
**Top of Gravel Pack:**  
**Stick-up:**

|      |      |
|------|------|
| 2.50 | m    |
| DRY  |      |
| 20   | mm   |
| 1.60 | mbgl |
| 0.00 | m    |

|                 |       |                |
|-----------------|-------|----------------|
| $a_{s50}$       | 2.950 | m <sup>2</sup> |
| Gravel Factor   | 0.35  |                |
| $V_{p75-25}$    | 0.110 | m <sup>3</sup> |
| Water Level 75% | 0.675 | m              |
| Water Level 25% | 0.225 | m              |
| TIME 75% Eff D  | 0.0   | mins           |
| TIME 25% Eff D  | 0.0   | mins           |
| TIME 75% Eff D  | 0.0   | sec            |
| TIME 25% Eff D  | 0.0   | sec            |
| $t_{p25-75}$    | 0.0   | sec            |

[illegible]

|                               |
|-------------------------------|
| Infiltration Rate (F) (m / s) |
| TEST FAILED                   |
|                               |

### Extrapolated Data

Calculated Field

**Data Entry Required**

Value Taken from graph at 25% and 75%

| Remarks |
|---------|
|         |

1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

## Notes

$$\text{Soil Infiltration Rate (F)} = V_{p75-25} / (a_{s50} \times t_{p25-75})$$

where:

$V_{p75-25}$  = Effective volume of water in the pit between 75% and 25% effective depth.

$a_{50}$  = Internal surface area of pit up to 50% effective depth and including base area.

$t_{p25-75}$  = Time for water to fall from 75% to 25% effective depth.

# Appendix 9

## Gas and Groundwater Monitoring Data



| Well Ref. | Monitoring Event Date | CH <sub>4</sub><br>Average<br>(%) | CH <sub>4</sub><br>Peak<br>(%) | CO <sub>2</sub><br>(%) | O <sub>2</sub><br>(%) | H <sub>2</sub> S<br>(ppm) | CO<br>(ppm) | VOC<br>Average<br>(ppm) | VOC<br>Peak<br>(ppm) | Flow<br>Rate<br>(l/hr) | Atmos.<br>Pressure<br>(mbar) | Rel.<br>Pressure<br>(kPa) | Casing<br>Height<br>(magl) | Depth to<br>Water<br>(mbgl) | Depth to<br>Base<br>(mbgl) | Sample<br>Taken?<br>(Y/N) | Engineer | Qhg Flow<br>(l/hr) | QHg CH <sub>4</sub> | QHg CO <sub>2</sub> |
|-----------|-----------------------|-----------------------------------|--------------------------------|------------------------|-----------------------|---------------------------|-------------|-------------------------|----------------------|------------------------|------------------------------|---------------------------|----------------------------|-----------------------------|----------------------------|---------------------------|----------|--------------------|---------------------|---------------------|
| GWS101    | 15 February 2024      | 0.0                               | 0.0                            | 0.1                    | 19.8                  | 0                         | 0           | 0.0                     | 0.0                  | 0.0                    | 996                          | -0.09                     | 0.00                       | DRY                         | 5.00                       | N                         | SCS      | 0.1                | 0.000               | 0.000               |
| GWS102    | 15 February 2024      | 0.0                               | 0.0                            | 0.4                    | 20.8                  | 0                         | 0           | 0.0                     | 0.0                  | 0.0                    | 996                          | -0.02                     | 0.37                       | DRY                         | 4.98                       | N                         | SCS      | 0.1                | 0.000               | 0.000               |
| GWS104    | 15 February 2024      | 0.0                               | 0.0                            | 1.3                    | 18.9                  | 0                         | 0           | 0.0                     | 0.0                  | 0.0                    | 996                          | 0.00                      | 0.36                       | DRY                         | 4.98                       | N                         | SCS      | 0.1                | 0.000               | 0.001               |

# **Appendix 10**

## **Geotechnical Laboratory Reports**



**TEST REPORT**  
ISSUED BY SOIL PROPERTY TESTING LTD  
DATE ISSUED: 27/02/2024



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |                                                                                                                                                                                                                                                                                                                                                                        |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Contract</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Newells, Letchworth</b> |                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Serial No.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>44164_1</b>             |                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Client:</b><br>Green Earth Management Company Ltd<br>Suite 3 Broomfield Park<br>Coggeshall Road<br>Earls Colne<br>Essex<br>CO6 2JX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            | <b>Soil Property Testing Ltd</b><br><br>15, 16, 18 Halcyon Court, St Margaret's Way,<br>Stukeley Meadows, Huntingdon,<br>Cambridgeshire, PE29 6DG<br><br>Tel: 01480 455579<br>Email: <a href="mailto:enquiries@soilpropertytesting.com">enquiries@soilpropertytesting.com</a><br>Website: <a href="http://www.soilpropertytesting.com">www.soilpropertytesting.com</a> |  |
| <b>Samples Submitted By:</b><br>Green Earth Management Company Ltd<br><br><b>Samples Labelled:</b><br>Newells, Letchworth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            | <b>Approved Signatories:</b><br><br><input checked="" type="checkbox"/> <b>J.C. Garner B.Eng (Hons) FGS</b><br>Technical Director & Quality Manager<br><br><input type="checkbox"/> <b>W. Johnstone</b><br>Materials Lab Manager<br><br>                                          |  |
| <b>Date Received:</b> 13/02/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                            | <b>Samples Tested Between:</b> 13/02/2024 and 27/02/2024                                                                                                                                                                                                                                                                                                               |  |
| <b>Remarks:</b><br>For the attention of Charles Unsworth<br>Your Reference No: 2247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Notes:</b><br><ol style="list-style-type: none"><li>1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.</li><li>2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.</li><li>3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.</li><li>4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.</li><li>5 The results within this report only relate to the items tested or sampled.</li></ol> |                            |                                                                                                                                                                                                                                                                                                                                                                        |  |



# TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD  
DATE ISSUED: 27/02/2024



|                     |      |                |                                    |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
|---------------------|------|----------------|------------------------------------|----------------------------------------------------------------------------------------------------|----|----|--|--|--|--|--|--|-------------|--|--|------------|--|--|--|-----------------|--|--|--|----------------|
| Contract            |      |                | Newells, Letchworth                |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| Serial No.          |      |                | 44164_1                            |                                                                                                    |    |    |  |  |  |  |  |  | Target Date |  |  | 27/02/2024 |  |  |  |                 |  |  |  |                |
| Scheduled By        |      |                | Green Earth Management Company Ltd |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
|                     |      |                |                                    |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| Schedule Remarks    |      |                |                                    |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| Bore<br>Hole<br>No. | Type | Sample<br>Ref. | Top<br>Depth                       | <div>Water Content (BS EN)</div> <div>Liquid/Plastic Limits</div> <div>Wet Sieve Preparation</div> |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  | Sample Remarks |
|                     |      |                |                                    |                                                                                                    |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS101              | D    | 1              | 0.50                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS101              | D    | 2              | 1.00                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS101              | D    | 3              | 1.50                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS101              | D    | 5              | 2.70                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS101              | D    | 7              | 4.20                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS102              | D    | 2              | 1.50                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS102              | D    | 4              | 2.70                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS102              | D    | 6              | 4.00                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS103              | D    | 2              | 1.80                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS103              | D    | 4              | 3.00                               | 1                                                                                                  | 1  |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS103              | D    | 6              | 4.20                               | 1                                                                                                  | 1  |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 1              | 0.50                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 2              | 1.10                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 3              | 1.70                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 4              | 2.20                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 6              | 3.40                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS104              | D    | 8              | 4.70                               | 1                                                                                                  | 1  |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS105              | D    | 1              | 0.70                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS105              | D    | 2              | 1.00                               | 1                                                                                                  | 1  | 1  |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| GWS105              | D    | 3              | 1.80                               | 1                                                                                                  |    |    |  |  |  |  |  |  |             |  |  |            |  |  |  |                 |  |  |  |                |
| Totals              |      |                |                                    | 20                                                                                                 | 14 | 11 |  |  |  |  |  |  |             |  |  |            |  |  |  | End of Schedule |  |  |  |                |



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|                                                                                                                                                                                               |             |                     |      |                   |                                                                                                                                                                                 |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Contract                                                                                                                                                                                      |             | Newells, Letchworth |      |                   |                                                                                                                                                                                 |         |
| Serial No.                                                                                                                                                                                    |             | 44164_1             |      |                   |                                                                                                                                                                                 |         |
|                                                                                                                                                                                               |             |                     |      |                   |                                                                                                                                                                                 |         |
| SUMMARY OF WATER CONTENT                                                                                                                                                                      |             |                     |      |                   |                                                                                                                                                                                 |         |
| Borehole /Pit No.                                                                                                                                                                             | Depth (m)   | Type                | Ref. | Water Content (%) | Description                                                                                                                                                                     | Remarks |
| GWS101                                                                                                                                                                                        | 0.50        | D                   | 1    | 20.2              | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare brick fragments and decayed roots. Gravel is fine and medium chalk and flint                      |         |
| GWS101                                                                                                                                                                                        | 1.00 - 1.10 | D                   | 2    | 18.1              | Stiff mottled grey, greyish brown and light olive brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium chalk and flint                                  |         |
| GWS101                                                                                                                                                                                        | 1.50 - 1.60 | D                   | 3    | 15.2              | Stiff light olive brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium chalk and flint                                                                  |         |
| GWS101                                                                                                                                                                                        | 2.70 - 2.90 | D                   | 5    | 24.8              | White structureless CHALK with occasional orange staining and intact chalk fragments from fine to coarse gravel size                                                            |         |
| GWS101                                                                                                                                                                                        | 4.20 - 4.40 | D                   | 7    | 22.6              | White structureless CHALK with rare intact chalk fragments of fine gravel size                                                                                                  |         |
| GWS102                                                                                                                                                                                        | 1.50 - 1.70 | D                   | 2    | 13.7              | Stiff brownish yellow slightly gravelly slightly sandy silty CLAY with occasional orange staining. Gravel is fine to coarse chalk and flint                                     |         |
| GWS102                                                                                                                                                                                        | 2.70 - 2.90 | D                   | 4    | 26.2              | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                                                                 |         |
| GWS102                                                                                                                                                                                        | 4.00 - 4.30 | D                   | 6    | 26.0              | White structureless CHALK with occasional harder intact chalk fragments of fine and medium gravel size                                                                          |         |
| GWS103                                                                                                                                                                                        | 1.80 - 2.00 | D                   | 2    | 15.1              | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                                                                 |         |
| GWS103                                                                                                                                                                                        | 3.00 - 3.20 | D                   | 4    | 20.0              | White structureless CHALK with rare orange staining                                                                                                                             |         |
| GWS103                                                                                                                                                                                        | 4.20 - 4.50 | D                   | 6    | 21.6              | White structureless CHALK with rare orange staining                                                                                                                             |         |
| GWS104                                                                                                                                                                                        | 0.50 - 0.60 | D                   | 1    | 19.0              | Stiff mottled light orangish brown and light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine and medium chalk and flint |         |
| GWS104                                                                                                                                                                                        | 1.10 - 1.30 | D                   | 2    | 19.5              | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare orange staining and recently active and decayed roots. Gravel is fine and medium chalk and flint  |         |
| GWS104                                                                                                                                                                                        | 1.70 - 1.90 | D                   | 3    | 11.5              | Very pale brown structureless slightly sandy CHALK with intact chalk fragments from fine to coarse gravel size and black angular to subrounded flint                            |         |
| Method Of Preparation: BS EN ISO: 17892-1: 2014                                                                                                                                               |             |                     |      |                   |                                                                                                                                                                                 |         |
| Method of Test: BS EN ISO: 17892-1: 2014                                                                                                                                                      |             |                     |      |                   |                                                                                                                                                                                 |         |
| Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter                                                                   |             |                     |      |                   |                                                                                                                                                                                 |         |
| Comments:                                                                                                                                                                                     |             |                     |      |                   |                                                                                                                                                                                 |         |
| Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C |             |                     |      |                   |                                                                                                                                                                                 |         |



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| Contract                                                                                                                                                                                      | Newells, Letchworth |      |      |                   |                                                                                                                                                                                    |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Serial No.                                                                                                                                                                                    | 44164_1             |      |      |                   |                                                                                                                                                                                    |         |
| SUMMARY OF WATER CONTENT                                                                                                                                                                      |                     |      |      |                   |                                                                                                                                                                                    |         |
| Borehole /Pit No.                                                                                                                                                                             | Depth (m)           | Type | Ref. | Water Content (%) | Description                                                                                                                                                                        | Remarks |
| GWS104                                                                                                                                                                                        | 2.20 - 2.40         | D    | 4    | 14.6              | White structureless CHALK with rare intact chalk fragments and black fine and medium angular flint gravel                                                                          |         |
| GWS104                                                                                                                                                                                        | 3.40 - 3.60         | D    | 6    | 19.7              | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                                                                    |         |
| GWS104                                                                                                                                                                                        | 4.70 - 5.00         | D    | 8    | 20.5              | White structureless CHALK                                                                                                                                                          |         |
| GWS105                                                                                                                                                                                        | 0.70 - 0.80         | D    | 1    | 19.9              | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse chalk and flint                                      |         |
| GWS105                                                                                                                                                                                        | 1.00 - 1.20         | D    | 2    | 18.2              | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine and medium chalk and flint                         |         |
| GWS105                                                                                                                                                                                        | 1.80 - 2.00         | D    | 3    | 18.7              | Stiff mottled bluish grey and light olive brown slightly gravelly slightly sandy silty CLAY with rare brick fragments and decayed roots. Gravel is fine and medium chalk and flint |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
|                                                                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
| Method Of Preparation: BS EN ISO: 17892-1: 2014                                                                                                                                               |                     |      |      |                   |                                                                                                                                                                                    |         |
| Method of Test: BS EN ISO: 17892-1: 2014                                                                                                                                                      |                     |      |      |                   |                                                                                                                                                                                    |         |
| Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter                                                                   |                     |      |      |                   |                                                                                                                                                                                    |         |
| Comments:                                                                                                                                                                                     |                     |      |      |                   |                                                                                                                                                                                    |         |
| Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C |                     |      |      |                   |                                                                                                                                                                                    |         |



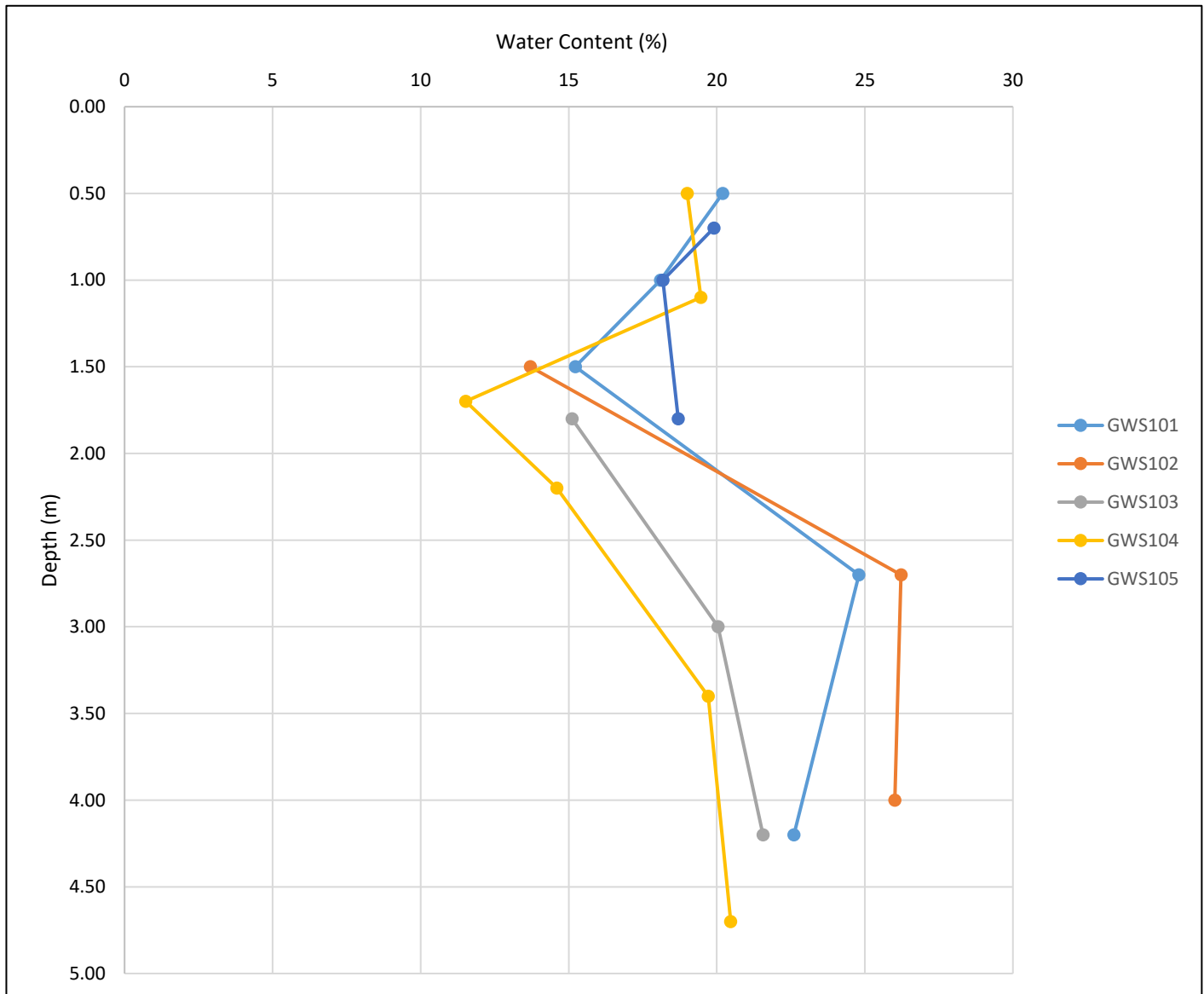
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|------------|---------------------|
| Contract   | Newells, Letchworth |
| Serial No. | 44164_1             |

## WATER CONTENT VS DEPTH BELOW GROUND LEVEL



|                        |                                                                                                                                                                            |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Method of Preparation: | BSEN ISO 17892-1: 2014                                                                                                                                                     |
| Method of Test:        | BSEN ISO 17892-1: 2014                                                                                                                                                     |
| Type of Sample Key:    | U - Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter                                                                    |
| Comments:              |                                                                                                                                                                            |
| Remarks to Include:    | Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C |



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| Serial No. | 44164_1             |

## SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

| Borehole /Pit No. | Depth (m)   | Type | Ref. | Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Liquid-ity Index | Sample Preparation |                   |                     |                   | Description                                                                                                                                 | Class |
|-------------------|-------------|------|------|-------------------|------------------|-------------------|----------------------|------------------|--------------------|-------------------|---------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------|
|                   |             |      |      |                   |                  |                   |                      |                  | Method             | Ret'd 0.425mm (%) | Corr'd W/C <0.425mm | Curing Time (hrs) |                                                                                                                                             |       |
| GWS101            | 1.50 - 1.60 | D    | 3    | 15.2              | 46               | 16                | 30                   | -0.03            | Wet Sieved         | 12 (M)            | N/R*                | 48                | Stiff light olive brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium chalk and flint                              | CI    |
| GWS101            | 2.70 - 2.90 | D    | 5    | 24.8              | 31               | 23                | 8                    | 0.23             | Wet Sieved         | 15 (M)            | N/R*                | 24                | White structureless CHALK with occasional orange staining and intact chalk fragments from fine to coarse gravel size                        | CL/ML |
| GWS102            | 1.50 - 1.70 | D    | 2    | 13.7              | 28               | 14                | 14                   | -0.02            | Wet Sieved         | 27 (M)            | N/R*                | 27                | Stiff brownish yellow slightly gravelly slightly sandy silty CLAY with occasional orange staining. Gravel is fine to coarse chalk and flint | CL    |
| GWS102            | 2.70 - 2.90 | D    | 4    | 26.2              | 33               | 24                | 9                    | 0.25             | Wet Sieved         | 14 (M)            | N/R*                | 26                | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                             | CL/ML |
| GWS102            | 4.00 - 4.30 | D    | 6    | 26.0              | 30               | 22                | 8                    | 0.50             | Wet Sieved         | 8 (M)             | N/R*                | 24                | White structureless CHALK with occasional harder intact chalk fragments of fine and medium gravel size                                      | CL    |
| GWS103            | 1.80 - 2.00 | D    | 2    | 15.1              | 27               | 20                | 7                    | -0.70            | Wet Sieved         | 6 (M)             | N/R*                | 28                | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                             | CL    |
| GWS103            | 3.00 - 3.20 | D    | 4    | 20.0              | 29               | 21                | 8                    | -0.12            | From Natural       | 0 (A)             | N/R*                | 25                | White structureless CHALK with rare orange staining                                                                                         | CL    |
| GWS103            | 4.20 - 4.50 | D    | 6    | 21.6              | 29               | 21                | 8                    | 0.07             | From Natural       | 0 (A)             | N/R*                | 24                | White structureless CHALK with rare orange staining                                                                                         | CL    |

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2  
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4  
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter  
Comments: \*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1. Where N/R, corrected water content is not reported due to material type.  
Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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## SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

| Borehole /Pit No. | Depth (m)   | Type | Ref. | Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Liquidity Index | Sample Preparation |                   |                     |                   | Description                                                                                                                                                                    | Class |
|-------------------|-------------|------|------|-------------------|------------------|-------------------|----------------------|-----------------|--------------------|-------------------|---------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|                   |             |      |      |                   |                  |                   |                      |                 | Method             | Ret'd 0.425mm (%) | Corr'd W/C <0.425mm | Curing Time (hrs) |                                                                                                                                                                                |       |
| GWS104            | 1.10 - 1.30 | D    | 2    | 19.5              | 55               | 18                | 37                   | 0.04            | Wet Sieved         | 10 (M)            | N/R*                | 26                | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare orange staining and recently active and decayed roots. Gravel is fine and medium chalk and flint | CH    |
| GWS104            | 1.70 - 1.90 | D    | 3    | 11.5              | 25               | 15                | 10                   | -0.35           | Wet Sieved         | 23 (M)            | N/R*                | 28                | Very pale brown structureless slightly sandy CHALK with intact chalk fragments from fine to coarse gravel size and black angular to subrounded flint                           | CL    |
| GWS104            | 2.20 - 2.40 | D    | 4    | 14.6              | 27               | 19                | 8                    | -0.55           | Wet Sieved         | 6 (M)             | N/R*                | 24                | White structureless CHALK with rare intact chalk fragments and black fine and medium angular flint gravel                                                                      | CL    |
| GWS104            | 3.40 - 3.60 | D    | 6    | 19.7              | 30               | 22                | 8                    | -0.29           | Wet Sieved         | 11 (M)            | N/R*                | 24                | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size                                                                                | CL    |
| GWS104            | 4.70 - 5.00 | D    | 8    | 20.5              | 29               | 20                | 9                    | 0.05            | From Natural       | 0 (A)             | N/R*                | 24                | White structureless CHALK                                                                                                                                                      | CL    |
| GWS105            | 1.00 - 1.20 | D    | 2    | 18.2              | 50               | 17                | 33                   | 0.04            | Wet Sieved         | 8 (M)             | N/R*                | 24                | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine and medium chalk and flint                     | CI/CH |
|                   |             |      |      |                   |                  |                   |                      |                 |                    |                   |                     |                   |                                                                                                                                                                                |       |
|                   |             |      |      |                   |                  |                   |                      |                 |                    |                   |                     |                   |                                                                                                                                                                                |       |

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2  
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4  
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter  
Comments: \*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1. Where N/R, corrected water content is not reported due to material type.  
Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



# TEST REPORT

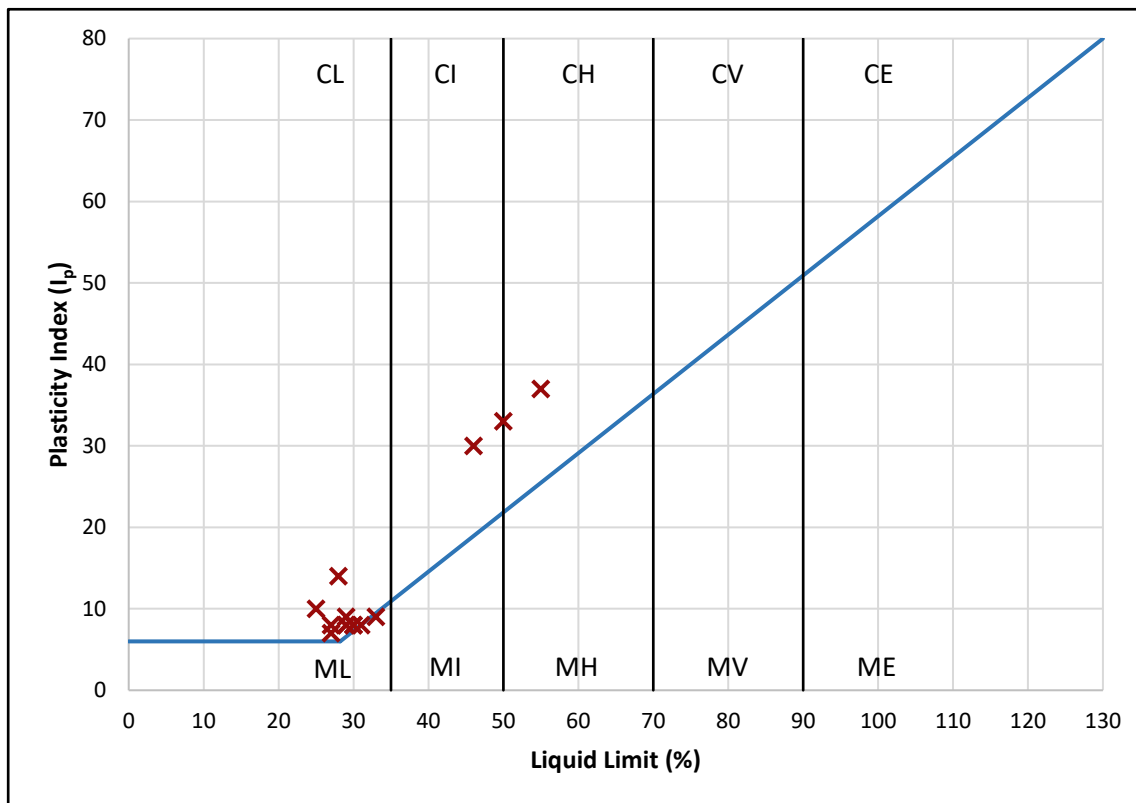
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|------------|---------------------|
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## PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

| Plasticity |        |      |           |                |
|------------|--------|------|-----------|----------------|
| Low        | Medium | High | Very High | Extremely High |



Plasticity Chart BS5930: 2015: Figure 8

|        |                              |
|--------|------------------------------|
| High   | NHBC Volume Change Potential |
| Medium |                              |
| Low    |                              |

|                        |                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------|
| Method of Preparation: | BS 1377: Part 2: 1990: 4.2                                                                              |
| Method of Test:        | BS1377: Part 2: 3.2, 4.4, 5.3, 5.4                                                                      |
| Type of Sample Key:    | U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter |
| Comments:              | Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index                         |



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                         |        |                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                              |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|--------|---------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Newells, Letchworth |                         |        |                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                              |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 44164_1             |                         |        |                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                              |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                                                                       |                     |                         |        |                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                              |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Depth<br>m          | Sample<br>TypeReference |        | Water<br>Content<br>(W) % | Description                                                                                                    | Remarks                                                                                                                                                                                                                                                                                                                                      |              |
| GWS101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.50 - 1.60         | D                       | 3      | 15.2                      | Stiff light olive brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium chalk and flint |                                                                                                                                                                                                                                                                                                                                              |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                         |        |                           | Liquid Limit                                                                                                   | 46 %                                                                                                                                                                                                                                                                                                                                         |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                         |        |                           | Wet sieved over 0.425mm sieve                                                                                  | Plastic Limit                                                                                                                                                                                                                                                                                                                                | 16 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                         |        |                           | 12 %                                                                                                           | Plasticity Index                                                                                                                                                                                                                                                                                                                             | 30 %         |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |        |                           | Not reported                                                                                                   | Liquidity Index                                                                                                                                                                                                                                                                                                                              | -0.03        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |        |                           | 8 %                                                                                                            | NHBC Modified (I'p)                                                                                                                                                                                                                                                                                                                          | 26 %         |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                         | 48 hrs | Clay Content              | Not analysed                                                                                                   | Derived Activity                                                                                                                                                                                                                                                                                                                             | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index % (Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div><div>CL</div><div>CI</div><div>CH</div><div>CV</div><div>CE</div><div>ML</div><div>MI</div><div>MH</div><div>MV</div><div>ME</div></div><div>0102030405060708090100110120</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div></div> <div>Plasticity Chart BS5930: 2015: Figure 8</div> <div>Liquid Limit %</div> |                     |                         |        |                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                              |              |
| Method of Preparation:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |                         |        |                           |                                                                                                                | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                        |              |
| Method of Test:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                         |        |                           |                                                                                                                | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                         |              |
| Type of Sample Key:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                         |        |                           |                                                                                                                | U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                    |              |
| Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                           |                                                                                                                | Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100) |              |



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |   |                        |                                                                                                                      |                     |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|---|------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------|--------------|
| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Newells, Letchworth |                         |   |                        |                                                                                                                      |                     |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                | 44164_1             |                         |   |                        |                                                                                                                      |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                  |                     |                         |   |                        |                                                                                                                      |                     |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                        | Depth<br>m          | Sample<br>TypeReference |   | Water Content<br>(W) % | Description                                                                                                          | Remarks             |              |
| GWS101                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.70 - 2.90         | D                       | 5 | 24.8                   | White structureless CHALK with occasional orange staining and intact chalk fragments from fine to coarse gravel size |                     |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         |   |                        | Liquid Limit                                                                                                         | 31 %                |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |   |                        | Wet sieved over 0.425mm sieve                                                                                        | Plastic Limit       | 23 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                         |   |                        | 15 %                                                                                                                 | Plasticity Index    | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                        | Not reported                                                                                                         | Liquidity Index     | 0.23         |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                        | 14 %                                                                                                                 | NHBC Modified (I'p) | 7 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     | 24 hrs                  |   | Clay Content           | Not analysed                                                                                                         | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0102030405060708090100110120</div><div>CLCI</div><div>CHCVCE</div><div>MLMI</div><div>MH</div><div>MV</div><div>ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |   |                        |                                                                                                                      |                     |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                                                                                                              |                     |                         |   |                        |                                                                                                                      |                     |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                        |                                                                                                                      |                     |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                                                                                                             |                     |                         |   |                        |                                                                                                                      |                     |              |
| Comments: Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)                                                                                                    |                     |                         |   |                        |                                                                                                                      |                     |              |



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| Contract                                                                                                                                                                                                   | Newells, Letchworth |                         |   |                           |                                                                                                                                             |                     |              |
| Serial No.                                                                                                                                                                                                 | 44164_1             |                         |   |                           |                                                                                                                                             |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                   |                     |                         |   |                           |                                                                                                                                             |                     |              |
| Borehole / Pit No.                                                                                                                                                                                         | Depth<br>m          | Sample<br>TypeReference |   | Water<br>Content<br>(W) % | Description                                                                                                                                 | Remarks             |              |
| GWS102                                                                                                                                                                                                     | 1.50 - 1.70         | D                       | 2 | 13.7                      | Stiff brownish yellow slightly gravelly slightly sandy silty CLAY with occasional orange staining. Gravel is fine to coarse chalk and flint |                     |              |
| PREPARATION                                                                                                                                                                                                |                     |                         |   |                           | Liquid Limit                                                                                                                                | 28 %                |              |
| Method of preparation                                                                                                                                                                                      |                     |                         |   |                           | Wet sieved over 0.425mm sieve                                                                                                               | Plastic Limit       | 14 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                   |                     |                         |   |                           | 27 %                                                                                                                                        | Plasticity Index    | 14 %         |
| Corrected water content for material passing 0.425mm                                                                                                                                                       |                     |                         |   |                           | Not reported                                                                                                                                | Liquidity Index     | -0.02        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                       |                     |                         |   |                           | 24 %                                                                                                                                        | NHBC Modified (I'p) | 10 %         |
| Curing time                                                                                                                                                                                                |                     | 27 hrs                  |   | Clay Content              | Not analysed                                                                                                                                | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index % (Ip)</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div></div> <div>Liquid Limit %</div> |                     |                         |   |                           |                                                                                                                                             |                     |              |

Plasticity Chart BS5930: 2015: Figure 8



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| Contract                                                                                                                                                                                                                                                                                                                                                                                                        | Newells, Letchworth |                         |        |                        |                                                                                                 |                     |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                      | 44164_1             |                         |        |                        |                                                                                                 |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                        |                     |                         |        |                        |                                                                                                 |                     |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                              | Depth<br>m          | Sample<br>TypeReference |        | Water Content<br>(W) % | Description                                                                                     | Remarks             |              |
| GWS102                                                                                                                                                                                                                                                                                                                                                                                                          | 2.70 - 2.90         | D                       | 4      | 26.2                   | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size |                     |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |        |                        | Liquid Limit                                                                                    | 33 %                |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |        |                        | Wet sieved over 0.425mm sieve                                                                   | Plastic Limit       | 24 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                        |                     |                         |        |                        | 14 %                                                                                            | Plasticity Index    | 9 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                            |                     |                         |        |                        | Not reported                                                                                    | Liquidity Index     | 0.25         |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                            |                     |                         |        |                        | 14 %                                                                                            | NHBC Modified (I'p) | 8 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         | 26 hrs | Clay Content           | Not analysed                                                                                    | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0 10 20 30 40 50 60 70 80 90 100 110 120</div><div>CL CI CH CV CE<br/>ML MI MH MV ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High<br/>Medium<br/>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                                                                    |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                                                                            |                     |                         |        |                        |                                                                                                 |                     |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                                                                   |                     |                         |        |                        |                                                                                                 |                     |              |
| Comments: Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)                                                          |                     |                         |        |                        |                                                                                                 |                     |              |



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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|--------|------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Newells, Letchworth |                         |        |                        |                                                                                                        |                                                                                                                                                                                                                                                                                                                                              |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                | 44164_1             |                         |        |                        |                                                                                                        |                                                                                                                                                                                                                                                                                                                                              |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        |                                                                                                        |                                                                                                                                                                                                                                                                                                                                              |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                        | Depth<br>m          | Sample<br>TypeReference |        | Water Content<br>(W) % | Description                                                                                            | Remarks                                                                                                                                                                                                                                                                                                                                      |              |
| GWS102                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.00 - 4.30         | D                       | 6      | 26.0                   | White structureless CHALK with occasional harder intact chalk fragments of fine and medium gravel size |                                                                                                                                                                                                                                                                                                                                              |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         |        |                        | Liquid Limit                                                                                           | 30 %                                                                                                                                                                                                                                                                                                                                         |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |        |                        | Wet sieved over 0.425mm sieve                                                                          | Plastic Limit                                                                                                                                                                                                                                                                                                                                | 22 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        | 8 %                                                                                                    | Plasticity Index                                                                                                                                                                                                                                                                                                                             | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | Not reported                                                                                           | Liquidity Index                                                                                                                                                                                                                                                                                                                              | 0.50         |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | 7 %                                                                                                    | NHBC Modified (I'p)                                                                                                                                                                                                                                                                                                                          | 7 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         | 24 hrs | Clay Content           | Not analysed                                                                                           | Derived Activity                                                                                                                                                                                                                                                                                                                             | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0102030405060708090100110120</div><div>CLCI</div><div>CHCVCE</div><div>MLMI</div><div>MH</div><div>MV</div><div>ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |        |                        |                                                                                                        |                                                                                                                                                                                                                                                                                                                                              |              |
| Method of Preparation:                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                         |        |                        |                                                                                                        | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                        |              |
| Method of Test:                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |        |                        |                                                                                                        | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                         |              |
| Type of Sample Key:                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                         |        |                        |                                                                                                        | U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                    |              |
| Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                         |        |                        |                                                                                                        | Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100) |              |



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| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Newells, Letchworth |                         |        |                        |                                                                                                 |                     |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                | 44164_1             |                         |        |                        |                                                                                                 |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        |                                                                                                 |                     |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                        | Depth<br>m          | Sample<br>TypeReference |        | Water Content<br>(W) % | Description                                                                                     | Remarks             |              |
| GWS103                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.80 - 2.00         | D                       | 2      | 15.1                   | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size |                     |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         |        |                        | Liquid Limit                                                                                    | 27 %                |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |        |                        | Wet sieved over 0.425mm sieve                                                                   | Plastic Limit       | 20 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        | 6 %                                                                                             | Plasticity Index    | 7 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | Not reported                                                                                    | Liquidity Index     | -0.70        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | 5 %                                                                                             | NHBC Modified (I'p) | 7 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         | 28 hrs | Clay Content           | Not analysed                                                                                    | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0102030405060708090100110120</div><div>CLCI</div><div>CHCVCE</div><div>MLMI</div><div>MH</div><div>MV</div><div>ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                                                                                                              |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        |                                                                                                 |                     |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                                                                                                             |                     |                         |        |                        |                                                                                                 |                     |              |
| Comments: Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)                                                                                                    |                     |                         |        |                        |                                                                                                 |                     |              |



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| Contract                                                                                                                                                                                                       | Newells, Letchworth |                         |   |                        |                                                     |                                                    |              |
| Serial No.                                                                                                                                                                                                     | 44164_1             |                         |   |                        |                                                     |                                                    |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                       |                     |                         |   |                        |                                                     |                                                    |              |
| Borehole / Pit No.                                                                                                                                                                                             | Depth<br>m          | Sample<br>TypeReference |   | Water Content<br>(W) % | Description                                         | Remarks                                            |              |
| GWS103                                                                                                                                                                                                         | 3.00 - 3.20         | D                       | 4 | 20.0                   | White structureless CHALK with rare orange staining |                                                    |              |
| PREPARATION                                                                                                                                                                                                    |                     |                         |   |                        | Liquid Limit                                        | 29 %                                               |              |
| Method of preparation                                                                                                                                                                                          |                     |                         |   |                        | From natural                                        | Plastic Limit                                      | 21 %         |
| Sample retained 0.425mm sieve (Assumed)                                                                                                                                                                        |                     |                         |   |                        | 0 %                                                 | Plasticity Index                                   | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                           |                     |                         |   |                        | Not reported                                        | Liquidity Index                                    | -0.12        |
| Sample retained 2mm sieve (Assumed)                                                                                                                                                                            |                     |                         |   |                        | 0 %                                                 | NHBC Modified (I'p)                                | n/a          |
| Curing time                                                                                                                                                                                                    |                     | 25 hrs                  |   | Clay Content           | Not analysed                                        | Derived Activity                                   | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div></div> <div>Liquid Limit %</div> |                     |                         |   |                        |                                                     | <div>Plasticity Chart BS5930: 2015: Figure 8</div> |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                   |                     |                         |   |                        |                                                     |                                                    |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                           |                     |                         |   |                        |                                                     |                                                    |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                  |                     |                         |   |                        |                                                     |                                                    |              |
| Comments: Corrected water content not reported due to material type.                                                                                                                                           |                     |                         |   |                        |                                                     |                                                    |              |



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| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Newells, Letchworth |                         |   |                           |                                                     |                     |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                | 44164_1             |                         |   |                           |                                                     |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                  |                     |                         |   |                           |                                                     |                     |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                        | Depth<br>m          | Sample<br>TypeReference |   | Water<br>Content<br>(W) % | Description                                         | Remarks             |              |
| GWS103                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.20 - 4.50         | D                       | 6 | 21.6                      | White structureless CHALK with rare orange staining |                     |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         |   |                           | Liquid Limit                                        | 29 %                |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |   |                           | From natural                                        | Plastic Limit       | 21 %         |
| Sample retained 0.425mm sieve (Assumed)                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                         |   |                           | 0 %                                                 | Plasticity Index    | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                           | Not reported                                        | Liquidity Index     | 0.07         |
| Sample retained 2mm sieve (Assumed)                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                         |   |                           | 0 %                                                 | NHBC Modified (I'p) | n/a          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     | 24 hrs                  |   | Clay Content              | Not analysed                                        | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0102030405060708090100110120</div><div>CLCI</div><div>CHCVCE</div><div>MLMI</div><div>MH</div><div>MV</div><div>ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |   |                           |                                                     |                     |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                                                                                                              |                     |                         |   |                           |                                                     |                     |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                           |                                                     |                     |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                                                                                                             |                     |                         |   |                           |                                                     |                     |              |
| Comments: Corrected water content not reported due to material type.                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |   |                           |                                                     |                     |              |



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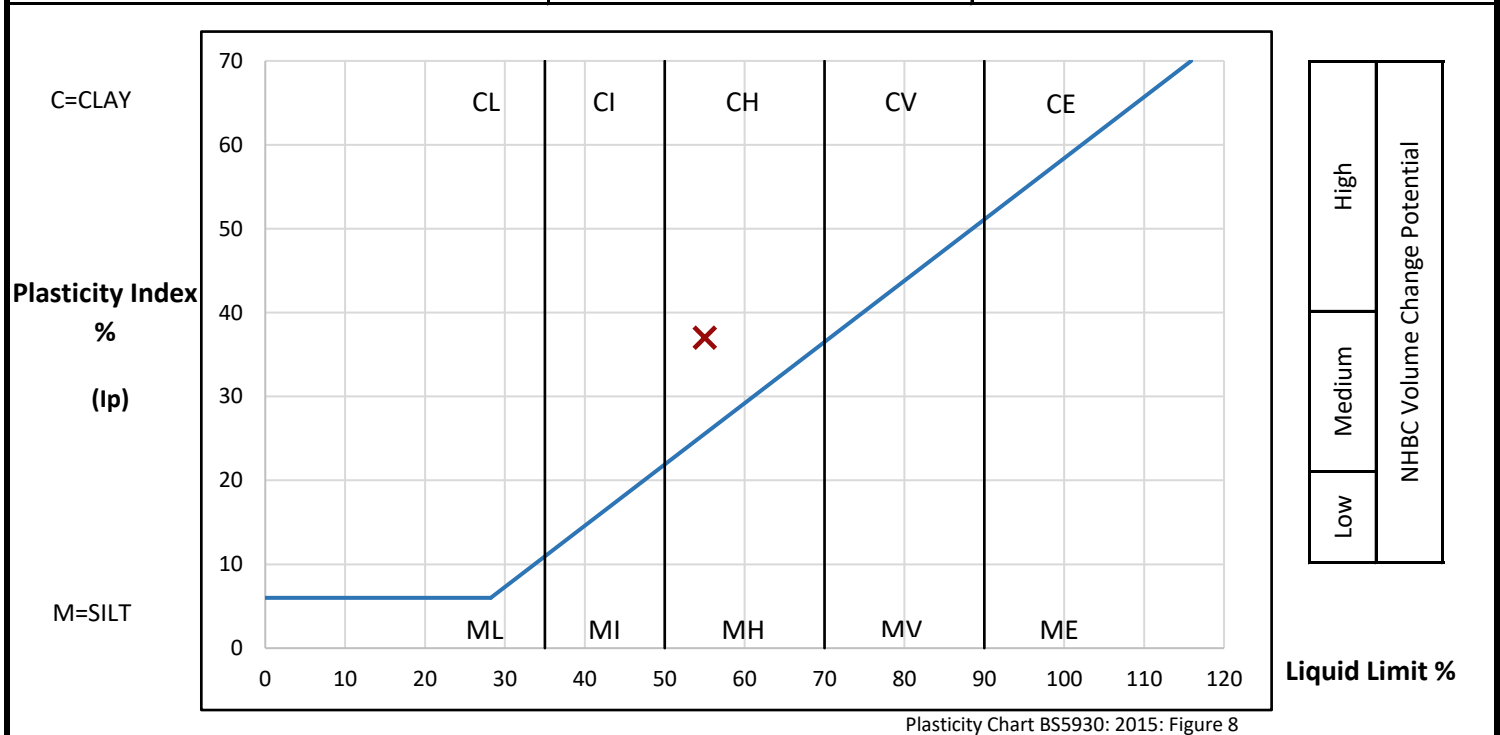


|            |                     |
|------------|---------------------|
| Contract   | Newells, Letchworth |
| Serial No. | 44164_1             |

## DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

| Borehole<br>/ Pit No. | Depth<br>m     | Sample |           | Water<br>Content<br>(W) % | Description                                                                                                                                                                    | Remarks |
|-----------------------|----------------|--------|-----------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|                       |                | Type   | Reference |                           |                                                                                                                                                                                |         |
| GWS104                | 1.10 -<br>1.30 | D      | 2         | 19.5                      | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare orange staining and recently active and decayed roots. Gravel is fine and medium chalk and flint |         |

|                                                      |  |            |                               |                     |                  |              |
|------------------------------------------------------|--|------------|-------------------------------|---------------------|------------------|--------------|
| PREPARATION                                          |  |            | Liquid Limit                  | 55 %                |                  |              |
| Method of preparation                                |  |            | Wet sieved over 0.425mm sieve | Plastic Limit       | 18 %             |              |
| Sample retained 0.425mm sieve                        |  | (Measured) | 10 %                          | Plasticity Index    | 37 %             |              |
| Corrected water content for material passing 0.425mm |  |            | Not reported                  | Liquidity Index     | 0.04             |              |
| Sample retained 2mm sieve                            |  | (Measured) | 6 %                           | NHBC Modified (I'p) | 33 %             |              |
| Curing time                                          |  | 26 hrs     | Clay Content                  | Not analysed        | Derived Activity | Not analysed |



|                        |                                                                                                                                                                                                                                                                                                                                              |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Method of Preparation: | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                        |
| Method of Test:        | BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                         |
| Type of Sample Key:    | U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                    |
| Comments:              | Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100) |



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|                                                                                                                                                                                                                                                                                                                                                        |                     |                         |   |                        |                                                                                                                                                      |                                                |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|---|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------|
| Contract                                                                                                                                                                                                                                                                                                                                               | Newells, Letchworth |                         |   |                        |                                                                                                                                                      |                                                |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                             | 44164_1             |                         |   |                        |                                                                                                                                                      |                                                |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                               |                     |                         |   |                        |                                                                                                                                                      |                                                |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                     | Depth<br>m          | Sample<br>TypeReference |   | Water Content<br>(W) % | Description                                                                                                                                          | Remarks                                        |              |
| GWS104                                                                                                                                                                                                                                                                                                                                                 | 1.70 - 1.90         | D                       | 3 | 11.5                   | Very pale brown structureless slightly sandy CHALK with intact chalk fragments from fine to coarse gravel size and black angular to subrounded flint |                                                |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                            |                     |                         |   |                        | Liquid Limit                                                                                                                                         | 25 %                                           |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                  |                     |                         |   |                        | Wet sieved over 0.425mm sieve                                                                                                                        | Plastic Limit                                  | 15 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                               |                     |                         |   |                        | 23 %                                                                                                                                                 | Plasticity Index                               | 10 %         |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                   |                     |                         |   |                        | Not reported                                                                                                                                         | Liquidity Index                                | -0.35        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                   |                     |                         |   |                        | 20 %                                                                                                                                                 | NHBC Modified (I'p)                            | 8 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                            |                     | 28 hrs                  |   | Clay Content           | Not analysed                                                                                                                                         | Derived Activity                               | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index % (Ip)</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div></div> <div>Liquid Limit %</div>                                                                                                                                             |                     |                         |   |                        |                                                                                                                                                      | <p>Plasticity Chart BS5930: 2015: Figure 8</p> |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                           |                     |                         |   |                        |                                                                                                                                                      |                                                |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                   |                     |                         |   |                        |                                                                                                                                                      |                                                |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                          |                     |                         |   |                        |                                                                                                                                                      |                                                |              |
| Comments: Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100) |                     |                         |   |                        |                                                                                                                                                      |                                                |              |



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|                                                                                                                                                                                                                |                     |                          |   |                        |                                                                                                           |                     |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------|---|------------------------|-----------------------------------------------------------------------------------------------------------|---------------------|--------------|
| Contract                                                                                                                                                                                                       | Newells, Letchworth |                          |   |                        |                                                                                                           |                     |              |
| Serial No.                                                                                                                                                                                                     | 44164_1             |                          |   |                        |                                                                                                           |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                       |                     |                          |   |                        |                                                                                                           |                     |              |
| Borehole / Pit No.                                                                                                                                                                                             | Depth<br>m          | Sample<br>Type Reference |   | Water Content<br>(W) % | Description                                                                                               | Remarks             |              |
| GWS104                                                                                                                                                                                                         | 2.20 - 2.40         | D                        | 4 | 14.6                   | White structureless CHALK with rare intact chalk fragments and black fine and medium angular flint gravel |                     |              |
| PREPARATION                                                                                                                                                                                                    |                     |                          |   |                        | Liquid Limit                                                                                              | 27 %                |              |
| Method of preparation                                                                                                                                                                                          |                     |                          |   |                        | Wet sieved over 0.425mm sieve                                                                             | Plastic Limit       | 19 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                       |                     |                          |   |                        | 6 %                                                                                                       | Plasticity Index    | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                           |                     |                          |   |                        | Not reported                                                                                              | Liquidity Index     | -0.55        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                           |                     |                          |   |                        | 5 %                                                                                                       | NHBC Modified (I'p) | 8 %          |
| Curing time                                                                                                                                                                                                    |                     | 24 hrs                   |   | Clay Content           | Not analysed                                                                                              | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div></div> <div>Liquid Limit %</div> |                     |                          |   |                        |                                                                                                           |                     |              |

Plasticity Chart BS5930: 2015: Figure 8



# TEST REPORT

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                         |        |                        |                                                                                                 |                     |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|--------|------------------------|-------------------------------------------------------------------------------------------------|---------------------|--------------|
| Contract                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Newells, Letchworth |                         |        |                        |                                                                                                 |                     |              |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                | 44164_1             |                         |        |                        |                                                                                                 |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        |                                                                                                 |                     |              |
| Borehole / Pit No.                                                                                                                                                                                                                                                                                                                                                                                                                                        | Depth<br>m          | Sample<br>TypeReference |        | Water Content<br>(W) % | Description                                                                                     | Remarks             |              |
| GWS104                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3.40 - 3.60         | D                       | 6      | 19.7                   | White structureless CHALK with occasional intact chalk fragments of fine and medium gravel size |                     |              |
| PREPARATION                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         |        |                        | Liquid Limit                                                                                    | 30 %                |              |
| Method of preparation                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |                         |        |                        | Wet sieved over 0.425mm sieve                                                                   | Plastic Limit       | 22 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                         |        |                        | 11 %                                                                                            | Plasticity Index    | 8 %          |
| Corrected water content for material passing 0.425mm                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | Not reported                                                                                    | Liquidity Index     | -0.29        |
| Sample retained 2mm sieve (Measured)                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        | 10 %                                                                                            | NHBC Modified (I'p) | 7 %          |
| Curing time                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                         | 24 hrs | Clay Content           | Not analysed                                                                                    | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>70<br/>60<br/>50<br/>40<br/>30<br/>20<br/>10<br/>0</div><div>0102030405060708090100110120</div><div>CLCI</div><div>CHCVCE</div><div>MLMI</div><div>MH</div><div>MV</div><div>ME</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> <div><div>High</div><div>Medium</div><div>Low</div><div>NHBC Volume Change Potential</div><div>Liquid Limit %</div></div> |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                                                                                                                                                                                                                                                                                                                              |                     |                         |        |                        |                                                                                                 |                     |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                                                                                                                                                                                                                                                                                                                                      |                     |                         |        |                        |                                                                                                 |                     |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                                                                                                                                                                                                                                                                                                                             |                     |                         |        |                        |                                                                                                 |                     |              |
| Comments: Corrected water content not reported due to material type.<br>Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1<br>Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index<br>Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)                                                                                                    |                     |                         |        |                        |                                                                                                 |                     |              |



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|                                                                                                                                                  |                     |                         |   |                        |                           |                                                                                          |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|---|------------------------|---------------------------|------------------------------------------------------------------------------------------|--------------|
| Contract                                                                                                                                         | Newells, Letchworth |                         |   |                        |                           |                                                                                          |              |
| Serial No.                                                                                                                                       | 44164_1             |                         |   |                        |                           |                                                                                          |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX                         |                     |                         |   |                        |                           |                                                                                          |              |
| Borehole / Pit No.                                                                                                                               | Depth<br>m          | Sample<br>TypeReference |   | Water Content<br>(W) % | Description               | Remarks                                                                                  |              |
| GWS104                                                                                                                                           | 4.70 - 5.00         | D                       | 8 | 20.5                   | White structureless CHALK |                                                                                          |              |
| PREPARATION                                                                                                                                      |                     |                         |   |                        | Liquid Limit              | 29 %                                                                                     |              |
| Method of preparation                                                                                                                            |                     |                         |   |                        | From natural              | Plastic Limit                                                                            | 20 %         |
| Sample retained 0.425mm sieve (Assumed)                                                                                                          |                     |                         |   |                        | 0 %                       | Plasticity Index                                                                         | 9 %          |
| Corrected water content for material passing 0.425mm                                                                                             |                     |                         |   |                        | Not reported              | Liquidity Index                                                                          | 0.05         |
| Sample retained 2mm sieve (Assumed)                                                                                                              |                     |                         |   |                        | 0 %                       | NHBC Modified (I'p)                                                                      | n/a          |
| Curing time                                                                                                                                      |                     | 24 hrs                  |   | Clay Content           | Not analysed              | Derived Activity                                                                         | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(I<sub>p</sub>)</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> |                     |                         |   |                        |                           | <div>High</div> <div>Medium</div> <div>Low</div> <div>NHBC Volume Change Potential</div> |              |
| Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2                                                                     |                     |                         |   |                        |                           |                                                                                          |              |
| Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4                                                             |                     |                         |   |                        |                           |                                                                                          |              |
| Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter                                    |                     |                         |   |                        |                           |                                                                                          |              |
| Comments: Corrected water content not reported due to material type.                                                                             |                     |                         |   |                        |                           |                                                                                          |              |



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|                                                                                                                                       |                     |                          |   |                        |                                                                                                                                                            |                     |              |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------|---|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|
| Contract                                                                                                                              | Newells, Letchworth |                          |   |                        |                                                                                                                                                            |                     |              |
| Serial No.                                                                                                                            | 44164_1             |                          |   |                        |                                                                                                                                                            |                     |              |
| DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND<br>DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX              |                     |                          |   |                        |                                                                                                                                                            |                     |              |
| Borehole / Pit No.                                                                                                                    | Depth<br>m          | Sample<br>Type Reference |   | Water Content<br>(W) % | Description                                                                                                                                                | Remarks             |              |
| GWS105                                                                                                                                | 1.00 - 1.20         | D                        | 2 | 18.2                   | Stiff light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine and medium chalk and flint |                     |              |
| PREPARATION                                                                                                                           |                     |                          |   |                        | Liquid Limit                                                                                                                                               | 50 %                |              |
| Method of preparation                                                                                                                 |                     |                          |   |                        | Wet sieved over 0.425mm sieve                                                                                                                              | Plastic Limit       | 17 %         |
| Sample retained 0.425mm sieve (Measured)                                                                                              |                     |                          |   |                        | 8 %                                                                                                                                                        | Plasticity Index    | 33 %         |
| Corrected water content for material passing 0.425mm                                                                                  |                     |                          |   |                        | Not reported                                                                                                                                               | Liquidity Index     | 0.04         |
| Sample retained 2mm sieve (Measured)                                                                                                  |                     |                          |   |                        | 5 %                                                                                                                                                        | NHBC Modified (I'p) | 30 %         |
| Curing time                                                                                                                           |                     | 24 hrs                   |   | Clay Content           | Not analysed                                                                                                                                               | Derived Activity    | Not analysed |
| <div><div>C=CLAY</div><div>M=SILT</div><div>Plasticity Index %<br/>(Ip)</div><div>Plasticity Chart BS5930: 2015: Figure 8</div></div> |                     |                          |   |                        |                                                                                                                                                            |                     |              |

High

Medium

Low

NHBC Volume Change Potential

Liquid Limit %

# **Appendix 11**

## **Chemical Laboratory Reports**



Diane Robson  
Green Earth Management Co Ltd  
Suite 3  
Broomfield Park  
Coggeshall Road  
Earls Colne  
Essex  
CO6 2JX

Derwentside Environmental Testing Services Ltd  
Unit 1  
Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Kent  
ME17 2JN  
t: 01622 850410

## DETS Report No: 24-01415

Site Reference: Newells, Letchworth

Project / Job Ref: 2247

Order No: 2247 240208

Sample Receipt Date: 13/02/2024

Sample Scheduled Date: 13/02/2024

Report Issue Number: 1

Reporting Date: 19/02/2024

Authorised by:

Steve Knight  
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

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.



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



| Soil Analysis Certificate           |                 |               |               |               |               |               |
|-------------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| DETS Report No: 24-01415            | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |
| Green Earth Management Co Ltd       | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Site Reference: Newells, Letchworth | TP / BH No      | GSA101        | GWS101        | GWS102        | GWS102        | GWS104        |
| Project / Job Ref: 2247             | Additional Refs | E1            | E1            | E1            | E3            | E1            |
| Order No: 2247 240208               | Depth (m)       | 0.50          | 0.30          | 0.40          | 1.20          | 0.10          |
| Reporting Date: 19/02/2024          | DETS Sample No  | 698734        | 698735        | 698736        | 698737        | 698738        |

| Determinand                            | Unit          | RL      | Accreditation |              |                              |              |              |              |
|----------------------------------------|---------------|---------|---------------|--------------|------------------------------|--------------|--------------|--------------|
| Asbestos Screen <sup>(S)</sup>         | N/a           | N/a     | ISO17025      | Not Detected | Detected                     | Not Detected | Not Detected | Not Detected |
| Sample Matrix <sup>(S)</sup>           | Material Type | N/a     | NONE          |              | Bundles of Chrysotile fibres |              |              |              |
| Asbestos Type <sup>(S)</sup>           | PLM Result    | N/a     | ISO17025      |              | Chrysotile                   |              |              |              |
| Asbestos Quantification <sup>(S)</sup> | %             | < 0.001 | ISO17025      |              | 0.002                        |              |              |              |
| pH                                     | pH Units      | N/a     | MCERTS        | 7.6          | 9.1                          | 8.0          | 8.1          | 7.7          |
| Total Cyanide                          | mg/kg         | < 1     | NONE          | < 1          | < 1                          | < 1          | < 1          | < 1          |
| Total Sulphate as SO <sub>4</sub>      | mg/kg         | < 200   | MCERTS        | 931          | 888                          | 336          | 325          | 642          |
| Total Sulphate as SO <sub>4</sub>      | %             | < 0.02  | MCERTS        | 0.09         | 0.09                         | 0.03         | 0.03         | 0.06         |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | mg/l          | < 10    | MCERTS        | 151          | 137                          | 11           | 24           | 22           |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | g/l           | < 0.01  | MCERTS        | 0.15         | 0.14                         | 0.01         | 0.02         | 0.02         |
| Sulphide                               | mg/kg         | < 5     | NONE          | < 5          | < 5                          | < 5          | < 5          | < 5          |
| Organic Matter (SOM)                   | %             | < 0.1   | MCERTS        | 1.9          | 1.2                          | 1.5          | 1.7          | 6            |
| TOC (Total Organic Carbon)             | %             | < 0.1   | MCERTS        | 1.1          | 0.7                          | 0.9          | 1            | 3.5          |
| Arsenic (As)                           | mg/kg         | < 2     | MCERTS        | 15           | 18                           | 14           | 12           | 12           |
| Barium (Ba)                            | mg/kg         | < 2.5   | MCERTS        | 65           | 177                          | 55           | 49           | 59           |
| Beryllium (Be)                         | mg/kg         | < 0.5   | MCERTS        | 0.9          | 1                            | 0.7          | 0.7          | 0.7          |
| W/S Boron                              | mg/kg         | < 1     | NONE          | < 1          | < 1                          | < 1          | < 1          | < 1          |
| Cadmium (Cd)                           | mg/kg         | < 0.2   | MCERTS        | 0.2          | 0.6                          | 0.2          | < 0.2        | 0.3          |
| Chromium (Cr)                          | mg/kg         | < 2     | MCERTS        | 22           | 27                           | 20           | 18           | 17           |
| Chromium (hexavalent)                  | mg/kg         | < 2     | NONE          | < 2          | < 2                          | < 2          | < 2          | < 2          |
| Copper (Cu)                            | mg/kg         | < 4     | MCERTS        | 21           | 18                           | 14           | 15           | 27           |
| Lead (Pb)                              | mg/kg         | < 3     | MCERTS        | 28           | 22                           | 21           | 12           | 27           |
| Mercury (Hg)                           | mg/kg         | < 1     | MCERTS        | < 1          | < 1                          | < 1          | < 1          | < 1          |
| Nickel (Ni)                            | mg/kg         | < 3     | MCERTS        | 26           | 33                           | 19           | 20           | 18           |
| Selenium (Se)                          | mg/kg         | < 2     | MCERTS        | < 2          | < 2                          | < 2          | < 2          | < 2          |
| Vanadium (V)                           | mg/kg         | < 1     | MCERTS        | 39           | 53                           | 34           | 30           | 31           |
| Zinc (Zn)                              | mg/kg         | < 3     | MCERTS        | 83           | 132                          | 58           | 54           | 78           |
| Total Phenols (monohydric)             | mg/kg         | < 2     | NONE          | < 2          | < 2                          | < 2          | < 2          | < 2          |

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Maidstone  
Kent ME17 2JN  
Tel : 01622 850410



| Soil Analysis Certificate           |                 |               |               |               |               |               |
|-------------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| DETS Report No: 24-01415            | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |
| Green Earth Management Co Ltd       | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Site Reference: Newells, Letchworth | TP / BH No      | GWS104        | GWS101        | GWS101        | GWS101        | GWS102        |
| Project / Job Ref: 2247             | Additional Refs | E3            | SPT1          | SPT3          | SPT5          | SPT1          |
| Order No: 2247 240208               | Depth (m)       | 1.00          | 1.00 - 1.45   | 3.00 - 3.45   | 5.00 - 5.45   | 1.00 - 1.45   |
| Reporting Date: 19/02/2024          | DETS Sample No  | 698739        | 698740        | 698741        | 698742        | 698743        |

| Determinand                            | Unit          | RL      | Accreditation | (n)          | (n)  | (n)    | (n)    |
|----------------------------------------|---------------|---------|---------------|--------------|------|--------|--------|
| Asbestos Screen <sup>(S)</sup>         | N/a           | N/a     | ISO17025      | Not Detected |      |        |        |
| Sample Matrix <sup>(S)</sup>           | Material Type | N/a     | NONE          |              |      |        |        |
| Asbestos Type <sup>(S)</sup>           | PLM Result    | N/a     | ISO17025      |              |      |        |        |
| Asbestos Quantification <sup>(S)</sup> | %             | < 0.001 | ISO17025      |              |      |        |        |
| pH                                     | pH Units      | N/a     | MCERTS        | 8.0          | 8.1  | 8.3    | 8.3    |
| Total Cyanide                          | mg/kg         | < 1     | NONE          | < 1          |      |        |        |
| Total Sulphate as SO <sub>4</sub>      | mg/kg         | < 200   | MCERTS        | 330          |      |        |        |
| Total Sulphate as SO <sub>4</sub>      | %             | < 0.02  | MCERTS        | 0.03         |      |        |        |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | mg/l          | < 10    | MCERTS        | 18           | 50   | < 10   | < 10   |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | g/l           | < 0.01  | MCERTS        | 0.02         | 0.05 | < 0.01 | < 0.01 |
| Sulphide                               | mg/kg         | < 5     | NONE          | < 5          |      |        |        |
| Organic Matter (SOM)                   | %             | < 0.1   | MCERTS        | 1.2          |      |        |        |
| TOC (Total Organic Carbon)             | %             | < 0.1   | MCERTS        | 0.7          |      |        |        |
| Arsenic (As)                           | mg/kg         | < 2     | MCERTS        | 26           |      |        |        |
| Barium (Ba)                            | mg/kg         | < 2.5   | MCERTS        | 84           |      |        |        |
| Beryllium (Be)                         | mg/kg         | < 0.5   | MCERTS        | 0.8          |      |        |        |
| W/S Boron                              | mg/kg         | < 1     | NONE          | < 1          |      |        |        |
| Cadmium (Cd)                           | mg/kg         | < 0.2   | MCERTS        | < 0.2        |      |        |        |
| Chromium (Cr)                          | mg/kg         | < 2     | MCERTS        | 19           |      |        |        |
| Chromium (hexavalent)                  | mg/kg         | < 2     | NONE          | < 2          |      |        |        |
| Copper (Cu)                            | mg/kg         | < 4     | MCERTS        | 19           |      |        |        |
| Lead (Pb)                              | mg/kg         | < 3     | MCERTS        | 14           |      |        |        |
| Mercury (Hg)                           | mg/kg         | < 1     | MCERTS        | < 1          |      |        |        |
| Nickel (Ni)                            | mg/kg         | < 3     | MCERTS        | 32           |      |        |        |
| Selenium (Se)                          | mg/kg         | < 2     | MCERTS        | < 2          |      |        |        |
| Vanadium (V)                           | mg/kg         | < 1     | MCERTS        | 31           |      |        |        |
| Zinc (Zn)                              | mg/kg         | < 3     | MCERTS        | 73           |      |        |        |
| Total Phenols (monohydric)             | mg/kg         | < 2     | NONE          | < 2          |      |        |        |

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion  
Subcontracted analysis (S)



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Maidstone  
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Tel : 01622 850410



| Soil Analysis Certificate           |                 |               |               |               |               |  |
|-------------------------------------|-----------------|---------------|---------------|---------------|---------------|--|
| DETS Report No: 24-01415            | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |  |
| Green Earth Management Co Ltd       | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied |  |
| Site Reference: Newells, Letchworth | TP / BH No      | GWS102        | GWS102        | GWS104        | GWS104        |  |
| Project / Job Ref: 2247             | Additional Refs | SPT2          | SPT3          | SPT1          | SPT2          |  |
| Order No: 2247 240208               | Depth (m)       | 2.00 - 2.45   | 3.00 - 3.45   | 1.00 - 1.45   | 2.00 - 2.45   |  |
| Reporting Date: 19/02/2024          | DETS Sample No  | 698744        | 698745        | 698746        | 698747        |  |

| Determinand                            | Unit          | RL      | Accreditation | (n)    | (n)  | (n)  | (n)    |
|----------------------------------------|---------------|---------|---------------|--------|------|------|--------|
| Asbestos Screen <sup>(S)</sup>         | N/a           | N/a     | ISO17025      |        |      |      |        |
| Sample Matrix <sup>(S)</sup>           | Material Type | N/a     | NONE          |        |      |      |        |
| Asbestos Type <sup>(S)</sup>           | PLM Result    | N/a     | ISO17025      |        |      |      |        |
| Asbestos Quantification <sup>(S)</sup> | %             | < 0.001 | ISO17025      |        |      |      |        |
| pH                                     | pH Units      | N/a     | MCERTS        | 8.3    | 8.4  | 8.1  | 8.5    |
| Total Cyanide                          | mg/kg         | < 1     | NONE          |        |      |      |        |
| Total Sulphate as SO <sub>4</sub>      | mg/kg         | < 200   | MCERTS        |        |      |      |        |
| Total Sulphate as SO <sub>4</sub>      | %             | < 0.02  | MCERTS        |        |      |      |        |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | mg/l          | < 10    | MCERTS        | < 10   | 18   | 22   | < 10   |
| W/S Sulphate as SO <sub>4</sub> (2:1)  | g/l           | < 0.01  | MCERTS        | < 0.01 | 0.02 | 0.02 | < 0.01 |
| Sulphide                               | mg/kg         | < 5     | NONE          |        |      |      |        |
| Organic Matter (SOM)                   | %             | < 0.1   | MCERTS        |        |      |      |        |
| TOC (Total Organic Carbon)             | %             | < 0.1   | MCERTS        |        |      |      |        |
| Arsenic (As)                           | mg/kg         | < 2     | MCERTS        |        |      |      |        |
| Barium (Ba)                            | mg/kg         | < 2.5   | MCERTS        |        |      |      |        |
| Beryllium (Be)                         | mg/kg         | < 0.5   | MCERTS        |        |      |      |        |
| W/S Boron                              | mg/kg         | < 1     | NONE          |        |      |      |        |
| Cadmium (Cd)                           | mg/kg         | < 0.2   | MCERTS        |        |      |      |        |
| Chromium (Cr)                          | mg/kg         | < 2     | MCERTS        |        |      |      |        |
| Chromium (hexavalent)                  | mg/kg         | < 2     | NONE          |        |      |      |        |
| Copper (Cu)                            | mg/kg         | < 4     | MCERTS        |        |      |      |        |
| Lead (Pb)                              | mg/kg         | < 3     | MCERTS        |        |      |      |        |
| Mercury (Hg)                           | mg/kg         | < 1     | MCERTS        |        |      |      |        |
| Nickel (Ni)                            | mg/kg         | < 3     | MCERTS        |        |      |      |        |
| Selenium (Se)                          | mg/kg         | < 2     | MCERTS        |        |      |      |        |
| Vanadium (V)                           | mg/kg         | < 1     | MCERTS        |        |      |      |        |
| Zinc (Zn)                              | mg/kg         | < 3     | MCERTS        |        |      |      |        |
| Total Phenols (monohydric)             | mg/kg         | < 2     | NONE          |        |      |      |        |

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion  
Subcontracted analysis (S)



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| Soil Analysis Certificate - Speciated PAHs |                 |               |               |               |               |               |
|--------------------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| DETS Report No: 24-01415                   | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |
| Green Earth Management Co Ltd              | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Site Reference: Newells, Letchworth        | TP / BH No      | GSA101        | GWS101        | GWS102        | GWS102        | GWS104        |
| Project / Job Ref: 2247                    | Additional Refs | E1            | E1            | E1            | E3            | E1            |
| Order No: 2247 240208                      | Depth (m)       | 0.50          | 0.30          | 0.40          | 1.20          | 0.10          |
| Reporting Date: 19/02/2024                 | DETS Sample No  | 698734        | 698735        | 698736        | 698737        | 698738        |

| Determinand            | Unit  | RL    | Accreditation |       |       |       |       |       |
|------------------------|-------|-------|---------------|-------|-------|-------|-------|-------|
| Naphthalene            | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Acenaphthylene         | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Acenaphthene           | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Fluorene               | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Phenanthrene           | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Anthracene             | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Fluoranthene           | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Pyrene                 | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Benzo(a)anthracene     | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chrysene               | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Benzo(b)fluoranthene   | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Benzo(k)fluoranthene   | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Benzo(a)pyrene         | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Indeno(1,2,3-cd)pyrene | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Dibenz(a,h)anthracene  | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Benzo(ghi)perylene     | mg/kg | < 0.1 | MCERTS        | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total EPA-16 PAHs      | mg/kg | < 1.6 | MCERTS        | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1.6 |



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| Soil Analysis Certificate - Speciated PAHs |                 |               |  |  |  |  |
|--------------------------------------------|-----------------|---------------|--|--|--|--|
| DETS Report No: 24-01415                   | Date Sampled    | 07/02/24      |  |  |  |  |
| Green Earth Management Co Ltd              | Time Sampled    | None Supplied |  |  |  |  |
| Site Reference: Newells, Letchworth        | TP / BH No      | GWS104        |  |  |  |  |
| Project / Job Ref: 2247                    | Additional Refs | E3            |  |  |  |  |
| Order No: 2247 240208                      | Depth (m)       | 1.00          |  |  |  |  |
| Reporting Date: 19/02/2024                 | DETS Sample No  | 698739        |  |  |  |  |

| Determinand            | Unit  | RL    | Accreditation |       |  |  |  |
|------------------------|-------|-------|---------------|-------|--|--|--|
| Naphthalene            | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Acenaphthylene         | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Acenaphthene           | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Fluorene               | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Phenanthrene           | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Anthracene             | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Fluoranthene           | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Pyrene                 | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Benzo(a)anthracene     | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Chrysene               | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Benzo(b)fluoranthene   | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Benzo(k)fluoranthene   | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Benzo(a)pyrene         | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Indeno(1,2,3-cd)pyrene | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Dibenz(a,h)anthracene  | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Benzo(ghi)perylene     | mg/kg | < 0.1 | MCERTS        | < 0.1 |  |  |  |
| Total EPA-16 PAHs      | mg/kg | < 1.6 | MCERTS        | < 1.6 |  |  |  |



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| Soil Analysis Certificate - TPH CWG Banded |                 |               |               |               |               |               |
|--------------------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| DETS Report No: 24-01415                   | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |
| Green Earth Management Co Ltd              | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Site Reference: Newells, Letchworth        | TP / BH No      | GSA101        | GWS101        | GWS102        | GWS102        | GWS104        |
| Project / Job Ref: 2247                    | Additional Refs | E1            | E1            | E1            | E3            | E1            |
| Order No: 2247 240208                      | Depth (m)       | 0.50          | 0.30          | 0.40          | 1.20          | 0.10          |
| Reporting Date: 19/02/2024                 | DETS Sample No  | 698734        | 698735        | 698736        | 698737        | 698738        |

| Determinand          | Unit  | RL     | Accreditation |        |        |        |        |        |
|----------------------|-------|--------|---------------|--------|--------|--------|--------|--------|
| Aliphatic >C5 - C6   | mg/kg | < 0.01 | NONE          | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aliphatic >C6 - C8   | mg/kg | < 0.05 | NONE          | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Aliphatic >C8 - C10  | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    | < 2    | < 2    |
| Aliphatic >C10 - C12 | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    | < 2    | < 2    |
| Aliphatic >C12 - C16 | mg/kg | < 3    | MCERTS        | < 3    | < 3    | < 3    | < 3    | < 3    |
| Aliphatic >C16 - C21 | mg/kg | < 3    | MCERTS        | < 3    | < 3    | < 3    | < 3    | < 3    |
| Aliphatic >C21 - C34 | mg/kg | < 10   | MCERTS        | < 10   | < 10   | < 10   | < 10   | < 10   |
| Aliphatic (C5 - C34) | mg/kg | < 21   | NONE          | < 21   | < 21   | < 21   | < 21   | < 21   |
| Aromatic >C5 - C7    | mg/kg | < 0.01 | NONE          | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aromatic >C7 - C8    | mg/kg | < 0.05 | NONE          | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Aromatic >C8 - C10   | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    | < 2    | < 2    |
| Aromatic >C10 - C12  | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    | < 2    | < 2    |
| Aromatic >C12 - C16  | mg/kg | < 2    | MCERTS        | < 2    | < 2    | < 2    | < 2    | < 2    |
| Aromatic >C16 - C21  | mg/kg | < 3    | MCERTS        | < 3    | < 3    | < 3    | < 3    | < 3    |
| Aromatic >C21 - C35  | mg/kg | < 10   | MCERTS        | < 10   | < 10   | < 10   | < 10   | < 10   |
| Aromatic (C5 - C35)  | mg/kg | < 21   | NONE          | < 21   | < 21   | < 21   | < 21   | < 21   |
| Total >C5 - C35      | mg/kg | < 42   | NONE          | < 42   | < 42   | < 42   | < 42   | < 42   |



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Soil Analysis Certificate - TPH CWG Banded

|                                     |                 |               |  |  |  |  |
|-------------------------------------|-----------------|---------------|--|--|--|--|
| DETS Report No: 24-01415            | Date Sampled    | 07/02/24      |  |  |  |  |
| Green Earth Management Co Ltd       | Time Sampled    | None Supplied |  |  |  |  |
| Site Reference: Newells, Letchworth | TP / BH No      | GWS104        |  |  |  |  |
| Project / Job Ref: 2247             | Additional Refs | E3            |  |  |  |  |
| Order No: 2247 240208               | Depth (m)       | 1.00          |  |  |  |  |
| Reporting Date: 19/02/2024          | DETS Sample No  | 698739        |  |  |  |  |

| Determinand          | Unit  | RL     | Accreditation |        |  |  |  |
|----------------------|-------|--------|---------------|--------|--|--|--|
| Aliphatic >C5 - C6   | mg/kg | < 0.01 | NONE          | < 0.01 |  |  |  |
| Aliphatic >C6 - C8   | mg/kg | < 0.05 | NONE          | < 0.05 |  |  |  |
| Aliphatic >C8 - C10  | mg/kg | < 2    | MCERTS        | < 2    |  |  |  |
| Aliphatic >C10 - C12 | mg/kg | < 2    | MCERTS        | < 2    |  |  |  |
| Aliphatic >C12 - C16 | mg/kg | < 3    | MCERTS        | < 3    |  |  |  |
| Aliphatic >C16 - C21 | mg/kg | < 3    | MCERTS        | < 3    |  |  |  |
| Aliphatic >C21 - C34 | mg/kg | < 10   | MCERTS        | < 10   |  |  |  |
| Aliphatic (C5 - C34) | mg/kg | < 21   | NONE          | < 21   |  |  |  |
| Aromatic >C5 - C7    | mg/kg | < 0.01 | NONE          | < 0.01 |  |  |  |
| Aromatic >C7 - C8    | mg/kg | < 0.05 | NONE          | < 0.05 |  |  |  |
| Aromatic >C8 - C10   | mg/kg | < 2    | MCERTS        | < 2    |  |  |  |
| Aromatic >C10 - C12  | mg/kg | < 2    | MCERTS        | < 2    |  |  |  |
| Aromatic >C12 - C16  | mg/kg | < 2    | MCERTS        | < 2    |  |  |  |
| Aromatic >C16 - C21  | mg/kg | < 3    | MCERTS        | < 3    |  |  |  |
| Aromatic >C21 - C35  | mg/kg | < 10   | MCERTS        | < 10   |  |  |  |
| Aromatic (C5 - C35)  | mg/kg | < 21   | NONE          | < 21   |  |  |  |
| Total >C5 - C35      | mg/kg | < 42   | NONE          | < 42   |  |  |  |



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| Soil Analysis Certificate - BTEX / MTBE |                 |               |               |               |               |               |
|-----------------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| DETS Report No: 24-01415                | Date Sampled    | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      | 07/02/24      |
| Green Earth Management Co Ltd           | Time Sampled    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Site Reference: Newells, Letchworth     | TP / BH No      | GSA101        | GWS101        | GWS102        | GWS102        | GWS104        |
| Project / Job Ref: 2247                 | Additional Refs | E1            | E1            | E1            | E3            | E1            |
| Order No: 2247 240208                   | Depth (m)       | 0.50          | 0.30          | 0.40          | 1.20          | 0.10          |
| Reporting Date: 19/02/2024              | DETS Sample No  | 698734        | 698735        | 698736        | 698737        | 698738        |

| Determinand  | Unit  | RL  | Accreditation |     |     |     |     |     |
|--------------|-------|-----|---------------|-----|-----|-----|-----|-----|
| Benzene      | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 | < 2 | < 2 |
| Toluene      | ug/kg | < 5 | MCERTS        | < 5 | < 5 | < 5 | < 5 | < 5 |
| Ethylbenzene | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 | < 2 | < 2 |
| p & m-xylene | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 | < 2 | < 2 |
| o-xylene     | ug/kg | < 2 | MCERTS        | < 2 | < 2 | < 2 | < 2 | < 2 |
| MTBE         | ug/kg | < 5 | MCERTS        | < 5 | < 5 | < 5 | < 5 | < 5 |



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| Soil Analysis Certificate - BTEX / MTBE |                 |               |  |  |  |  |
|-----------------------------------------|-----------------|---------------|--|--|--|--|
| DETS Report No: 24-01415                | Date Sampled    | 07/02/24      |  |  |  |  |
| Green Earth Management Co Ltd           | Time Sampled    | None Supplied |  |  |  |  |
| Site Reference: Newells, Letchworth     | TP / BH No      | GWS104        |  |  |  |  |
| Project / Job Ref: 2247                 | Additional Refs | E3            |  |  |  |  |
| Order No: 2247 240208                   | Depth (m)       | 1.00          |  |  |  |  |
| Reporting Date: 19/02/2024              | DETS Sample No  | 698739        |  |  |  |  |

| Determinand  | Unit  | RL  | Accreditation |     |  |  |  |
|--------------|-------|-----|---------------|-----|--|--|--|
| Benzene      | ug/kg | < 2 | MCERTS        | < 2 |  |  |  |
| Toluene      | ug/kg | < 5 | MCERTS        | < 5 |  |  |  |
| Ethylbenzene | ug/kg | < 2 | MCERTS        | < 2 |  |  |  |
| p & m-xylene | ug/kg | < 2 | MCERTS        | < 2 |  |  |  |
| o-xylene     | ug/kg | < 2 | MCERTS        | < 2 |  |  |  |
| MTBE         | ug/kg | < 5 | MCERTS        | < 5 |  |  |  |



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#### Soil Analysis Certificate - Sample Descriptions

|                                     |
|-------------------------------------|
| DETS Report No: 24-01415            |
| Green Earth Management Co Ltd       |
| Site Reference: Newells, Letchworth |
| Project / Job Ref: 2247             |
| Order No: 2247 240208               |
| Reporting Date: 19/02/2024          |

| DETS Sample No | TP / BH No | Additional Refs | Depth (m)   | Moisture Content (%) | Sample Matrix Description              |
|----------------|------------|-----------------|-------------|----------------------|----------------------------------------|
| 698734         | GSA101     | E1              | 0.50        | 13.8                 | Brown sandy clay                       |
| 698735         | GWS101     | E1              | 0.30        | 13.6                 | Brown sandy clay with brick            |
| 698736         | GWS102     | E1              | 0.40        | 11.1                 | Brown sandy clay with stones           |
| 698737         | GWS102     | E3              | 1.20        | 11.3                 | Brown clay                             |
| 698738         | GWS104     | E1              | 0.10        | 26                   | Brown loamy sand with vegetation       |
| 698739         | GWS104     | E3              | 1.00        | 11.1                 | Brown sandy clay                       |
| 698740         | GWS101     | SPT1            | 1.00 - 1.45 | 10.4                 | Grey clay                              |
| 698741         | GWS101     | SPT3            | 3.00 - 3.45 | 18.7                 | White chalk                            |
| 698742         | GWS101     | SPT5            | 5.00 - 5.45 | 18.6                 | White chalk                            |
| 698743         | GWS102     | SPT1            | 1.00 - 1.45 | 8.7                  | Brown sandy clay with stones and chalk |
| 698744         | GWS102     | SPT2            | 2.00 - 2.45 | 17.6                 | White chalk                            |
| 698745         | GWS102     | SPT3            | 3.00 - 3.45 | 20                   | White chalk                            |
| 698746         | GWS104     | SPT1            | 1.00 - 1.45 | 11.7                 | Brown clay with chalk                  |
| 698747         | GWS104     | SPT2            | 2.00 - 2.45 | 10.1                 | White chalk                            |

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample <sup>I/S</sup>

Unsuitable Sample <sup>U/S</sup>



DETS Ltd  
Unit 1, Rose Lane Industrial Estate  
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| Soil Analysis Certificate - Methodology & Miscellaneous Information |  |
|---------------------------------------------------------------------|--|
| DETS Report No: 24-01415                                            |  |
| Green Earth Management Co Ltd                                       |  |
| Site Reference: Newells, Letchworth                                 |  |
| Project / Job Ref: 2247                                             |  |
| Order No: 2247 240208                                               |  |
| Reporting Date: 19/02/2024                                          |  |

| Matrix | Analysed On | Determinand                                                                                                                                     | Brief Method Description                                                                                                                             | Method No |
|--------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Soil   | D           | Boron - Water Soluble                                                                                                                           | Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES                                                            | E012      |
| Soil   | AR          | BTEX                                                                                                                                            | Determination of BTEX by headspace GC-MS                                                                                                             | E001      |
| Soil   | D           | Cations                                                                                                                                         | Determination of cations in soil by aqua-regia digestion followed by ICP-OES                                                                         | E002      |
| Soil   | D           | Chloride - Water Soluble (2:1)                                                                                                                  | Determination of chloride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | AR          | Chromium - Hexavalent                                                                                                                           | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry | E016      |
| Soil   | AR          | Cyanide - Complex                                                                                                                               | Determination of complex cyanide by distillation followed by colorimetry                                                                             | E015      |
| Soil   | AR          | Cyanide - Free                                                                                                                                  | Determination of free cyanide by distillation followed by colorimetry                                                                                | E015      |
| Soil   | AR          | Cyanide - Total                                                                                                                                 | Determination of total cyanide by distillation followed by colorimetry                                                                               | E015      |
| Soil   | D           | Cyclohexane Extractable Matter (CEM)                                                                                                            | Gravimetrically determined through extraction with cyclohexane                                                                                       | E011      |
| Soil   | AR          | Diesel Range Organics (C10 - C24)                                                                                                               | Determination of hexane/acetone extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement                             | E022      |
| Soil   | AR          | Electrical Conductivity                                                                                                                         | Determination of electrical conductivity by addition of water followed by electrometric measurement                                                  | E023      |
| Soil   | D           | Elemental Sulphur                                                                                                                               | Determination of elemental sulphur by solvent extraction followed by GC-MS                                                                           | E020      |
| Soil   | AR          | EPH (C10 - C40)                                                                                                                                 | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH Product ID                                                                                                                                  | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                   | E004      |
| Soil   | AR          | EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)                                                                                   | Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS                                        | E004      |
| Soil   | D           | Fluoride - Water Soluble                                                                                                                        | Determination of Fluoride by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | Fraction Organic Carbon (FOC)                                                                                                                   | Determination of TOC by combustion analyser.                                                                                                         | E027      |
| Soil   | D           | Organic Matter (SOM)                                                                                                                            | Determination of TOC by combustion analyser.                                                                                                         | E027      |
| Soil   | D           | TOC (Total Organic Carbon)                                                                                                                      | Determination of TOC by combustion analyser.                                                                                                         | E027      |
| Soil   | AR          | Exchangeable Ammonium                                                                                                                           | Determination of ammonium by discrete analyser.                                                                                                      | E029      |
| Soil   | D           | FOC (Fraction Organic Carbon)                                                                                                                   | Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate                     | E010      |
| Soil   | D           | Loss on Ignition @ 450oC                                                                                                                        | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                                       | E019      |
| Soil   | D           | Magnesium - Water Soluble                                                                                                                       | Determination of water soluble magnesium by extraction with water followed by ICP-OES                                                                | E025      |
| Soil   | D           | Metals                                                                                                                                          | Determination of metals by aqua-regia digestion followed by ICP-OES                                                                                  | E002      |
| Soil   | AR          | Mineral Oil (C10 - C40)                                                                                                                         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                  | E004      |
| Soil   | AR          | Moisture Content                                                                                                                                | Moisture content; determined gravimetrically                                                                                                         | E003      |
| Soil   | D           | Nitrate - Water Soluble (2:1)                                                                                                                   | Determination of nitrate by extraction with water & analysed by ion chromatography                                                                   | E009      |
| Soil   | D           | Organic Matter                                                                                                                                  | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | PAH - Speciated (EPA 16)                                                                                                                        | Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards                | E005      |
| Soil   | AR          | PCB - 7 Congeners                                                                                                                               | Determination of PCB by extraction with acetone and hexane followed by GC-MS                                                                         | E008      |
| Soil   | D           | Petroleum Ether Extract (PEE)                                                                                                                   | Gravimetrically determined through extraction with petroleum ether                                                                                   | E011      |
| Soil   | AR          | pH                                                                                                                                              | Determination of pH by addition of water followed by electrometric measurement                                                                       | E007      |
| Soil   | AR          | Phenols - Total (monohydric)                                                                                                                    | Determination of phenols by distillation followed by colorimetry                                                                                     | E021      |
| Soil   | D           | Phosphate - Water Soluble (2:1)                                                                                                                 | Determination of phosphate by extraction with water & analysed by ion chromatography                                                                 | E009      |
| Soil   | D           | Sulphate (as SO4) - Total                                                                                                                       | Determination of total sulphate by extraction with 10% HCl followed by ICP-OES                                                                       | E013      |
| Soil   | D           | Sulphate (as SO4) - Water Soluble (2:1)                                                                                                         | Determination of sulphate by extraction with water & analysed by ion chromatography                                                                  | E009      |
| Soil   | D           | Sulphate (as SO4) - Water Soluble (2:1)                                                                                                         | Determination of water soluble sulphate by extraction with water followed by ICP-OES                                                                 | E014      |
| Soil   | AR          | Sulphide                                                                                                                                        | Determination of sulphide by distillation followed by colorimetry                                                                                    | E018      |
| Soil   | D           | Sulphur - Total                                                                                                                                 | Determination of total sulphur by extraction with aqua-regia followed by ICP-OES                                                                     | E024      |
| Soil   | AR          | SVOC                                                                                                                                            | Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS                                               | E006      |
| Soil   | AR          | Thiocyanate (as SCN)                                                                                                                            | Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry  | E017      |
| Soil   | D           | Toluene Extractable Matter (TEM)                                                                                                                | Gravimetrically determined through extraction with toluene                                                                                           | E011      |
| Soil   | D           | Total Organic Carbon (TOC)                                                                                                                      | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                 | E010      |
| Soil   | AR          | TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)         | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS       | E004      |
| Soil   | AR          | VOCs                                                                                                                                            | Determination of volatile organic compounds by headspace GC-MS                                                                                       | E001      |
| Soil   | AR          | VPH (C6-C8 & C8-C10)                                                                                                                            | Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID                                                                            | E001      |

D Dried  
AR As Received

# Appendix 12

## Generic Assessment Criteria

| Generic Assessment Criteria for the Assessment of Risk to Human Health  |                           |                             |                                          |                             |                                   |
|-------------------------------------------------------------------------|---------------------------|-----------------------------|------------------------------------------|-----------------------------|-----------------------------------|
| Determinand                                                             | RwHP <sup>1</sup> (mg/kg) | RwoHP <sup>1</sup> (mg/kg)  | POS <sub>resi</sub> <sup>1</sup> (mg/kg) | Commercial (mg/kg)          | Source                            |
| Asbestos                                                                | ND                        | ND                          | ND                                       | < 0.001%                    |                                   |
| <b>Metals and Metalloids</b>                                            |                           |                             |                                          |                             |                                   |
| Arsenic                                                                 | 37                        | 40                          | 79                                       | 640                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Barium                                                                  | -                         | 1300                        | -                                        | 22000                       | CL:AIRE (2010) <sup>3</sup>       |
| Beryllium                                                               | 1.7                       | 1.7                         | 2.2                                      | 12                          | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Boron                                                                   | 290                       | 11000                       | 21000                                    | 240000                      | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Cadmium                                                                 | 11                        | 85                          | 120                                      | 190                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Chromium (III)                                                          | 910                       | 910                         | 1500                                     | 8600                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Chromium (VI)                                                           | 6                         | 6                           | 7.7                                      | 33                          | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Copper                                                                  | 2400                      | 7100                        | 12000                                    | 68000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Lead                                                                    | 200                       | 310                         | 630                                      | 2300                        | DEFRA (2014) C4SL <sup>4</sup>    |
| Mercury - Elemental                                                     | 1.2                       | 1.2                         | 16                                       | 58 (25.8) <sup>vap</sup>    | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Mercury - Inorganic                                                     | 40                        | 56                          | 120                                      | 1100                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Mercury - Methyl                                                        | 11                        | 15                          | 40                                       | 320                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Nickel                                                                  | 130                       | 180                         | 230                                      | 980                         | LQM/CIEH (2015) S4UL <sup>5</sup> |
| Selenium                                                                | 250                       | 430                         | 1100                                     | 12000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Vanadium                                                                | 410                       | 1200                        | 2000                                     | 9000                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Zinc                                                                    | 3700                      | 40000                       | 81000                                    | 730000                      | LQM/CIEH (2015) S4UL <sup>2</sup> |
| <b>Phenol – At 1% Soil Organic Matter</b>                               |                           |                             |                                          |                             |                                   |
| Phenol                                                                  | 120                       | 440 <sup>dir</sup> (460)    | 440 <sup>dir</sup> (10000)               | 440 <sup>dir</sup> (26000)  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| <b>Polyaromatic Hydrocarbons (USEPA 16) – At 1% Soil Organic Matter</b> |                           |                             |                                          |                             |                                   |
| Naphthalene                                                             | 2.3                       | 2.3                         | 4900                                     | 190 (76.4) <sup>sol</sup>   | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Acenaphthylene                                                          | 170                       | 2900 (86.1) <sup>sol</sup>  | 15000                                    | 83000 (86.1) <sup>sol</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Acenaphthene                                                            | 210                       | 3000 (57.0) <sup>sol</sup>  | 15000                                    | 84000 (57.0) <sup>sol</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Fluorene                                                                | 170                       | 2800 (30.9) <sup>sol</sup>  | 9900                                     | 63000 (30.9) <sup>sol</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Phenanthrene                                                            | 95                        | 1300 (36.0) <sup>sol</sup>  | 3100                                     | 22000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Anthracene                                                              | 2400                      | 31000 (1.17) <sup>vap</sup> | 74000                                    | 520000                      | LQM/CIEH (2015) S4UL <sup>2</sup> |

| Generic Assessment Criteria for the Assessment of Risk to Human Health        |                             |                             |                                          |                             |                                   |
|-------------------------------------------------------------------------------|-----------------------------|-----------------------------|------------------------------------------|-----------------------------|-----------------------------------|
| Determinand                                                                   | RwHP <sup>1</sup> (mg/kg)   | RwoHP <sup>1</sup> (mg/kg)  | POS <sub>resi</sub> <sup>1</sup> (mg/kg) | Commercial (mg/kg)          | Source                            |
| Fluoranthene                                                                  | 280                         | 1500                        | 3100                                     | 23000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Pyrene                                                                        | 620                         | 3700                        | 7400                                     | 54000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Benzo(a)anthracene                                                            | 7.2                         | 11                          | 29                                       | 170                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Chrysene                                                                      | 15                          | 30                          | 57                                       | 350                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Benzo(b)fluoranthene                                                          | 2.6                         | 3.9                         | 7.1                                      | 44                          | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Benzo(k)fluoranthene                                                          | 77                          | 110                         | 190                                      | 1200                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Benzo(a)pyrene                                                                | 2.2                         | 3.2                         | 5.7                                      | 35                          | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Indeno(1,2,3-cd)pyrene                                                        | 27                          | 45                          | 82                                       | 500                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Di-benzo(a,h)anthracene                                                       | 0.24                        | 0.31                        | 0.57                                     | 3.5                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Benzo(ghi)perylene                                                            | 320                         | 360                         | 640                                      | 3900                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Coal Tar (BaP surrogate marker)                                               | 0.79                        | 1.2                         | 2.2                                      | 15                          | LQM/CIEH (2015) S4UL <sup>2</sup> |
| <b>Total Petroleum Hydrocarbons (LQM Banding) – At 1% Soil Organic Matter</b> |                             |                             |                                          |                             |                                   |
| Aliphatic EC5 - EC6                                                           | 42                          | 42                          | 570000 (304) <sup>sol</sup>              | 3200 (304) <sup>sol</sup>   | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC6 - EC8                                                          | 100                         | 100                         | 600000                                   | 7800 (144) <sup>sol</sup>   | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC8 - EC10                                                         | 27                          | 27                          | 13000                                    | 2000 (78) <sup>sol</sup>    | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC10 - EC12                                                        | 130 (48) <sup>vap</sup>     | 130 (48) <sup>vap</sup>     | 13000                                    | 9700 (48) <sup>sol</sup>    | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC12 - EC16                                                        | 1100 (24) <sup>sol</sup>    | 1100 (24) <sup>sol</sup>    | 13000                                    | 59000 (24) <sup>sol</sup>   | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC16 - EC35                                                        | 65000 (8.48) <sup>sol</sup> | 65000 (8.48) <sup>sol</sup> | 250000                                   | 1600000                     | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aliphatic >EC35 - EC44                                                        | 65000 (8.48) <sup>sol</sup> | 65000 (8.48) <sup>sol</sup> | 250000                                   | 1600000                     | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC5 - EC7                                                           | 70                          | 370                         | 56000                                    | 26000 (1220) <sup>sol</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC7 - EC8                                                           | 130                         | 860                         | 56000                                    | 56000 (869) <sup>vap</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC8 - EC10                                                          | 34                          | 47                          | 5000                                     | 3500 (613) <sup>vap</sup>   | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC10 - EC12                                                         | 74                          | 250                         | 5000                                     | 16000 (364) <sup>sol</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC12 - EC16                                                         | 140                         | 1800                        | 5100                                     | 36000 (169) <sup>sol</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC16 - EC21                                                         | 260                         | 1900                        | 3800                                     | 28000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC21 - EC35                                                         | 1100                        | 1900                        | 3800                                     | 28000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Aromatic >EC35 - EC44                                                         | 1100                        | 1900                        | 3800                                     | 28000                       | LQM/CIEH (2015) S4UL <sup>2</sup> |

| Generic Assessment Criteria for the Assessment of Risk to Human Health |                           |                            |                                          |                            |                                   |
|------------------------------------------------------------------------|---------------------------|----------------------------|------------------------------------------|----------------------------|-----------------------------------|
| Determinand                                                            | RwHP <sup>1</sup> (mg/kg) | RwoHP <sup>1</sup> (mg/kg) | POS <sub>resi</sub> <sup>1</sup> (mg/kg) | Commercial (mg/kg)         | Source                            |
| Ali + Aro >EC44 - EC70                                                 | 1600                      | 1900                       | 3800                                     | 28000                      | LQM/CIEH (2015) S4UL <sup>2</sup> |
| <b>BTEX + MTBE – At 1% Soil Organic Matter</b>                         |                           |                            |                                          |                            |                                   |
| Benzene                                                                | 0.087                     | 0.38                       | 72                                       | 27                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Toluene                                                                | 130                       | 880 (869) <sup>vap</sup>   | 56000                                    | 56000 (869) <sup>vap</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Ethylbenzene                                                           | 47                        | 83                         | 24000                                    | 5700 (518) <sup>vap</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| o-Xylene                                                               | 60                        | 88                         | 41000                                    | 6600 (478) <sup>sol</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| m-xylene                                                               | 59                        | 82                         | 41000                                    | 6200 (625) <sup>sol</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| p-xylene                                                               | 56                        | 79                         | 41000                                    | 5900 (576) <sup>sol</sup>  | LQM/CIEH (2015) S4UL <sup>2</sup> |
| MTBE (Methyl tert-butyl ether)                                         | 49                        | 73                         | -                                        | 7900                       | CL:AIRE (2010) <sup>3</sup>       |
| <b>VOC – At 1% Soil Organic Matter</b>                                 |                           |                            |                                          |                            |                                   |
| Vinyl Chloride (Chloroethene)                                          | 0.00064                   | 0.00077                    | 3.5                                      | 0.059                      | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Chloromethane                                                          | 0.0083                    | 0.0085                     | -                                        | 1                          | CL:AIRE (2010) <sup>3</sup>       |
| Chloroethane                                                           | 8.3                       | 8.4                        | -                                        | 960                        | CL:AIRE (2010) <sup>3</sup>       |
| 1,1-Dichloroethene                                                     | 0.23                      | 0.23                       | -                                        | 26                         | CL:AIRE (2010) <sup>3</sup>       |
| trans-1,2-Dichloroethene                                               | 0.19                      | 0.19                       | -                                        | 22                         | CL:AIRE (2010) <sup>3</sup>       |
| 1,1-Dichloroethane                                                     | 2.4                       | 2.5                        | -                                        | 280                        | CL:AIRE (2010) <sup>3</sup>       |
| cis-1,2-Dichloroethene                                                 | 0.11                      | 0.12                       | -                                        | 14                         | CL:AIRE (2010) <sup>3</sup>       |
| trans-1,2-Dichloroethene                                               | 0.19                      | 0.19                       | -                                        | 22                         | CL:AIRE (2010) <sup>3</sup>       |
| Chloroform (trichloromethane/TCM)                                      | 0.91                      | 1.2                        | 2500                                     | 99                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| 1,1,1-Trichloroethane (1,1,1-TCA)                                      | 8.8                       | 9.0                        | 140000                                   | 660                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| 1,2-Dichloroethane (1,2-DCA)                                           | 0.0071                    | 0.0092                     | 29                                       | 2.9                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| 1,2-Dichloropropane                                                    | 0.024                     | 0.024                      | -                                        | 0.67                       | CL:AIRE (2010) <sup>3</sup>       |
| Trichloroethene (TCE)                                                  | 0.016                     | 0.017                      | 120                                      | 3.3                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Bromodichloromethane                                                   | 0.016                     | 0.019                      | 1790                                     | 1.2                        | CL:AIRE (2010) <sup>3</sup>       |
| 1,1,2-Trichloroethane                                                  | 0.6                       | 0.88                       | -                                        | 2.1                        | CL:AIRE (2010) <sup>3</sup>       |
| Tetrachloroethene (PCE)                                                | 0.18                      | 0.18                       | 1400                                     | 94                         | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Chlorobenzene                                                          | 0.46                      | 0.46                       | 11000                                    | 19                         | LQM/CIEH (2015) S4UL <sup>2</sup> |

| Generic Assessment Criteria for the Assessment of Risk to Human Health |                           |                            |                                          |                           |                                   |
|------------------------------------------------------------------------|---------------------------|----------------------------|------------------------------------------|---------------------------|-----------------------------------|
| Determinand                                                            | RwHP <sup>1</sup> (mg/kg) | RwoHP <sup>1</sup> (mg/kg) | POS <sub>resi</sub> <sup>1</sup> (mg/kg) | Commercial (mg/kg)        | Source                            |
| 1,1,1,2-Tetrachloroethane (1,1,1,2-PCA)                                | 1.2                       | 1.5                        | 1400                                     | 56                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Styrene                                                                | 8.1                       | 35                         | -                                        | 110                       | CL:AIRE (2010) <sup>3</sup>       |
| Bromoform                                                              | 2.8                       | 5.2                        | -                                        | 3300 (626) <sup>sat</sup> | CL:AIRE (2010) <sup>3</sup>       |
| Isopropylbenzene                                                       | 11                        | 12                         | -                                        | 760                       | CL:AIRE (2010) <sup>3</sup>       |
| 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)                                | 1.6                       | 3.9                        | 1400                                     | 1400 (390) <sup>sat</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| n-Propylbenzene                                                        | 34                        | 40                         | -                                        | 270                       | CL:AIRE (2010) <sup>3</sup>       |
| Bromobenzene                                                           | 0.87                      | 0.91                       | -                                        | 4100 (402) <sup>sat</sup> | CL:AIRE (2010) <sup>3</sup>       |
| 1,2,4-Trimethylbenzene                                                 | 0.35                      | 0.41                       | -                                        | 97                        | CL:AIRE (2010) <sup>3</sup>       |
| 1,3-Dichlorobenzene                                                    | 0.40                      | 0.44                       | 300                                      | 42                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| 1,4-Dichlorobenzene                                                    | 61                        | 61                         | 17000                                    | 30                        | LQM/CIEH (2015) S4UL <sup>2</sup> |
| 1,2-Dichlorobenzene                                                    | 23                        | 24                         | 90000                                    | 4400 (224) <sup>vap</sup> | LQM/CIEH (2015) S4UL <sup>2</sup> |
| Dichloromethane                                                        | 0.58                      | 2.1                        | -                                        | 2000 (571) <sup>sol</sup> | CL:AIRE (2010) <sup>3</sup>       |

Notes: <sup>sol</sup> GAC exceed the solubility saturation limit which is presented in brackets; consideration of the CSM may be required  
<sup>vap</sup> GAC exceed the vapour saturation limit which is presented in brackets; consideration of the CSM may be required  
<sup>sat</sup> GAC exceed a soil saturation limit (not specified) which is presented in brackets; consideration of the CSM may be required  
<sup>dir</sup> GAC is based on tolerable direct contact concentration; long term health protection value presented in brackets  
<sup>1</sup>RwHP = Residential land use including significant production and consumption of home-grown produce; RwoHP = Residential land use without significant production and consumption of home-grown produce;  
POS<sub>resi</sub> = Public open space in close proximity to residential properties  
<sup>2</sup>Nathanial, C.P. *et al.* (2015), The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Note that the LQM/CIEH S4ULs update and replace the former LQM/CIEH GAC on the basis of new toxicological and refined modelling data. The S4ULs also cover the Environment Agency SGV substances with the inclusion of updated toxicological and modelling data.  
<sup>3</sup>CL:AIRE, 'Soil Generic Assessment Criteria for Human Health Risk Assessment', 2010.  
<sup>4</sup>DEFRA (2014), 'SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - Policy Document Companion Document', DEFRA, December 2014; CL:AIRE Report 'SP1010 - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Rev 2, September 2014; DEFRA erratum note, Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - SP1010, Erratum (December 2014).  
<sup>6</sup>Nathanial, C.P. *et al.* (2015), The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Nickel update (August 2015).

| Category 4 Screening Levels (C4SL) <sup>1,2</sup> |              |               |                    |                    |                                    |                                    |
|---------------------------------------------------|--------------|---------------|--------------------|--------------------|------------------------------------|------------------------------------|
| Substance                                         | RwHP (mg/kg) | RwoHP (mg/kg) | Allotments (mg/kg) | Commercial (mg/kg) | Public Open Space 1 (Resi) (mg/kg) | Public Open Space 2 (Park) (mg/kg) |
| Arsenic                                           | 37           | 40            | 49                 | 640                | 79                                 | 168                                |
| Benzene                                           | 0.87         | 3.3           | 0.18               | 98                 | 140                                | 230                                |
| Benzo(a)pyrene                                    | 5            | 5.3           | 5.7                | 76                 | 10                                 | 21                                 |
| Cadmium                                           | 26           | 149           | 4.9                | 410                | 220                                | 880                                |
| Chromium VI                                       | 21           | 21            | 170                | 49                 | 23                                 | 250                                |
| Lead                                              | 200          | 310           | 80                 | 2330               | 630                                | 1300                               |

<sup>1</sup>Defra (2014), 'SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - Policy Document Companion Document', Defra, December 2014; CL:AIRE Report 'SP1010 - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Rev 2, September 2014; Defra erratum note, Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - SP1010, Erratum (December 2014).

<sup>2</sup>The C4SLs presented in this table apply to the standard land uses set out in the above references. The values are derived using the CLEA framework for a sandy loam soil with 6% soil organic matter. Un-adjusted C4SLs should not be used where the site conditions or land use scenarios differ significantly from these characteristics.

| Phytotoxic Contaminants (by Soil pH) <sup>1</sup> |         |           |       |
|---------------------------------------------------|---------|-----------|-------|
| Contaminant (mg/kg dry soil)                      | Soil pH |           |       |
|                                                   | < 6.0   | 6.0 – 7.0 | > 7.0 |
| Zinc (nitric acid extractable)                    | < 200   | < 200     | < 300 |
| Copper (nitric acid extractable)                  | < 100   | < 135     | < 200 |
| Nickel (nitric acid extractable)                  | < 60    | < 75      | < 110 |

<sup>1</sup>British Standard BS 3882:2015, Specification for topsoil

| Water UK/UK Water Industry Research (UKWIR) and Home Builders Federation (HBF) Assessment Criteria for Buried Pipework <sup>1</sup>                                                                     |                             |       |         |                                               |                                                               |                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------|---------|-----------------------------------------------|---------------------------------------------------------------|------------------------------------------|
| Test Group                                                                                                                                                                                              | Pipework Thresholds (mg/kg) |       |         |                                               |                                                               |                                          |
|                                                                                                                                                                                                         | PE                          | PVC   | Barrier | Metal                                         |                                                               |                                          |
|                                                                                                                                                                                                         |                             |       |         | Wrapped Steel                                 | Wrapped Ductile Iron                                          | Copper                                   |
| Where preliminary risk assessment has identified the possibility for contamination                                                                                                                      |                             |       |         |                                               |                                                               |                                          |
| Total VOCs                                                                                                                                                                                              | 0.5                         | 0.125 | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Total BTEX + MTBE                                                                                                                                                                                       | 0.1                         | 0.03  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Total SVOC (excl PAH and items marked with * below)                                                                                                                                                     | 2                           | 1.4   | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| EC5 – EC10 aliphatic and aromatic hydrocarbons                                                                                                                                                          | 2                           | -     | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| EC10 – EC16 aliphatic and aromatic hydrocarbons                                                                                                                                                         | 10                          | Pass  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| EC16 – EC40 aliphatic and aromatic hydrocarbons                                                                                                                                                         | 500                         | Pass  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Phenols* (from SVOC analysis)                                                                                                                                                                           | 2                           | 0.4   | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Cresols and chlorinated phenols* (from SVOC analysis)                                                                                                                                                   | 2                           | 0.04  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Conductivity, redox and pH (corrosives)                                                                                                                                                                 | Pass                        | Pass  | Pass    | Corrosive if pH <7 and conductivity >400µS/cm | Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm | Corrosive if pH <5 or >8 and Eh positive |
| Only required where a specific need has been identified                                                                                                                                                 |                             |       |         |                                               |                                                               |                                          |
| Ethers*                                                                                                                                                                                                 | 0.5                         | 1     | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Nitrobenzene*                                                                                                                                                                                           | 0.5                         | 0.4   | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Ketones*                                                                                                                                                                                                | 0.5                         | 0.02  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Aldehydes*                                                                                                                                                                                              | 0.5                         | 0.02  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| Amines*                                                                                                                                                                                                 | Fail                        | Pass  | Pass    | Pass                                          | Pass                                                          | Pass                                     |
| <sup>1</sup> Water UK and Home Builders Federation, 'Contaminated Land Assessment Guidance: Protocols published by agreement between UK Water and the Home Builders Federation', UK Water, January 2014 |                             |       |         |                                               |                                                               |                                          |