

DDOL 15A, LLANARMMEN RD. Gwynedd, PR07. REF 12/10.3741.

Percolation test results

| Hole No.              | Test Date | Test No. | Elapsed time      |                | Vp<br>(s/mm)                    |
|-----------------------|-----------|----------|-------------------|----------------|---------------------------------|
|                       |           |          | Minutes<br>(mins) | Seconds<br>(s) |                                 |
| 1 (T1)                |           | 1        |                   |                | Seconds<br>divided by<br>150 mm |
|                       |           | 2        |                   |                |                                 |
|                       |           | 3        |                   |                |                                 |
|                       |           |          | Av. 55            | 3300           | 22                              |
| Average VP for Hole 1 |           |          |                   |                | 22                              |

The mean Vp value for the three test holes 22..

N.B. 300mm x 300mm Percolation Test holes dug to a depth of 1m and filled with water. Tests carried out over 3 days.

**Drainage field disposal - calculating trench area and trench length** - as set out in BS 6297:2007+A1:2008 *CoP for the design and installation of drainage fields for the use in wastewater treatment*.

For domestic premises, effluents which have received secondary treatment, the floor area of the drainage field should be calculated as follows.

$$A = p \times V_p \times 0.25 \text{ for septic tanks}$$

The floor area "A" should be converted to a linear trench based on the width of the trench.

Drainage trench widths should be between 0.3 m to 0.9 m. See examples of conversions for different trench widths in Table 1 below (taken from BS 6297:2007+A1:2008).

**Table 1 Floor area to linear trench length**

| Drainage field floor area (A)<br>m <sup>2</sup> | Linear trench length (in metres) |                    |                    |
|-------------------------------------------------|----------------------------------|--------------------|--------------------|
|                                                 | 0.3 m width trench               | 0.6 m width trench | 0.9 m width trench |
| 20                                              | 66                               | 33                 | 22                 |
| 30                                              | 100                              | 50                 | 33                 |
| 40                                              | 133                              | 67                 | 44                 |
| 50                                              | 167                              | 83                 | 56                 |
| 60                                              | 200                              | 100                | 66                 |
| 70                                              | 233                              | 117                | 78                 |
| 80                                              | 266                              | 134                | 88                 |
| 90                                              | 300                              | 150                | 100                |

### Calculation

$$A = p \times V_p \times 0.25 \text{ for septic tanks}$$

Where,

$p = 4$  no. (small 1 and 2 bedroom houses or flats – as per guidance in FDA1 form)

$V_p = 22.5$  mm/sec (as per percolation test findings)

Therefore,

$$A = 4 \times 22.5 \times 0.25$$

$$A = 22.5 \text{ m}^2$$

Interpolating floor area to linear trench length from Table 1 above, the minimum trench length (for various trench widths) to satisfy the requirements set out in BS 6297:2007+A1:2008 would be:

0.3 m width trench = 75 m

0.6 m width trench = 37 m

0.9 m width trench = 25 m

**Recommendation**

Construct a 37m (minimum) linear perforated effluent distribution pipe system (either in a 2 or 3 trench layout) in a 0.6m wide trench, laid at a gradient not steeper than 1:200. Pipes to be laid on a 300mm layer of clean shingle or broken stone (Graded 30 – 50mm granular material) and filled to a level 50mm above pipe.