PROPOSED SEPTIC TANK DRAINAGE TO SERVE CARAVAN PITCHES, GREAT TREADAM, LLANTILIO CROSSENNY.

NON-MAINS SEWERAGE ARRANGEMENTS .

A new separate non-mains sewerage arrangement is to be installed to serve the caravan pitches.

The proposal will comprise a Septic Tank with the liquid part of the effluent draining to an drainage field infiltration system, and the solid part being removed periodically as required.

It is acknowledged that for Camping and Caravan Sites subject to irregular usage a septic tank is a more successful method of treating sewerage as opposed to a treatment plant which needs to be in constant use to operate satisfactorily.

An assessment of the liquid part of the effluent for the proposed facility is required to establish the person equivalent that needs to be applied to the soakaway drainage calculation.

British Water – Flows and Loads – 4 document advises an individual in a dwelling will produce approximately 150 litres of effluent per day.

The same document also advises that a non-serviced touring caravan will produce 100 litres of effluent per day.

Caravan site has 20 pitches to be served by the Septic Tank.

Therefore 20 caravans x 100 litres/day = 2000 litres total output.

Relating this back to domestic usage upon which the standard formula for determining drainage field sizes is based the population equivalent is as follows:

2000 litres divided by 150 litres/day = 13.33 persons, rounded up to 14 persons.

For the benefit of the calculation required to establish the outfall drainage in accordance with BS 6297, a person equivalent of 14 persons has therefore been used in the calculations shown in Appendix 1.

Taking the standard default 2000 litre capacity and person output of 2000 litres then a septic tank of minimum 4000 litres capacity is required.

APPENDIX 1

Non – Mains Sewerage Assessment.

PERCOLATION TEST RESULTS

- Tests carried out: 25.09.2021
- Weather Conditions:
  Initial Hole excavation – 24.09.2021 – Dry, Sun/broken cloud.
  Perc. Test – 25.09.2021 – Dry, Sun/broken cloud.

- Tests in accordance with Natural Resources Wales Guideline GPP4/BS 6297
- Three test holes dug in area of drainage, equi-distant apart. Holes 300 x 300mm x 300mm deep below land drain invert level
- Holes filled with water overnight and refilled next day and times recorded for falls between 75% full and 25% full.

Hole No.	**Test Date**	**Test No.**	**Start Time**	**Finish Time**	**Elapsed Time**			**Vp (s/mm)**
					Hrs/mins (h/mins)	**Minutes (mins)**	**Seconds (s)**	**Seconds divided by 150mm**
1.	24.09.21	1	10.38	11.32	min	54 min	3240	21.6
	24.09.21	2	11.50	12.54	min	64 min	3840	25.6
	24.09.21	3	13.10	14.28	min	78 min	4680	31.2
							Average VP for Hole 1	**26.13**
2.	24.09.21	1	10.45	11.57	min	72 min	4320	28.8
	24.09.21	2	12.20	13.41	min	81 min	4860	32.4
	24.09.21	3	14.00	15.34	min	94 min	5640	37.6
							Average VP for Hole 2	**32.93**
3.	24.09.21	1	10.50	11.53		63 min	3780	25.2
	24.09.21	2	12.15	13.29		74 min	4440	29.6
	24.09.21	3	13.40	15.07		87 min	5220	34.80
							Average VP for Hole 3	**29.87**

Average VP = 26.13 + 32.93 + 29.87 = 88.93 ÷ 3 = 29.64

Population Assessment of proposed drainage installation.

The assessment discussed in the Introduction concludes a population equivalent of 14 persons per day.

To Calculate Area of Trench

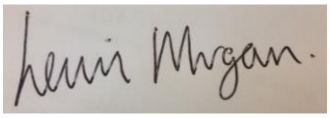
$At = P \times V.P \times 0.25$
Where At = Trench area, P = no. of persons, V.P = Rate of fall

Therefore, $At = 14 \times 29.64 \times 0.25$
$= 103.74m^2$
= 173m length of 600mm wide trench
or drainage field of $103.74m^2$.

Notes

Install Drainage field of $104m^2$ as shown on drawings.

Trial pits shown on drawing extract in Appendix 2
Outfall drainage shown on extract from drawing 2152 in Appendix 2.
Soakaway drainage to be installed at gradient no steeper 1:200.
See Introduction for separate report to demonstrate population assessment for calculation purposes.



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APPENDIX 2

Trial Pit Location Plan.

(Extract from drawing 2152 – 03B)

Extract from Drawing 2152 – 03B

NOTE: The Trial Pit Locations are confirmed as being located within the boundary of the proposed drainage field.