

Site Investigation Report for land off
Gatewen Road, Wrexham

Appendix 9

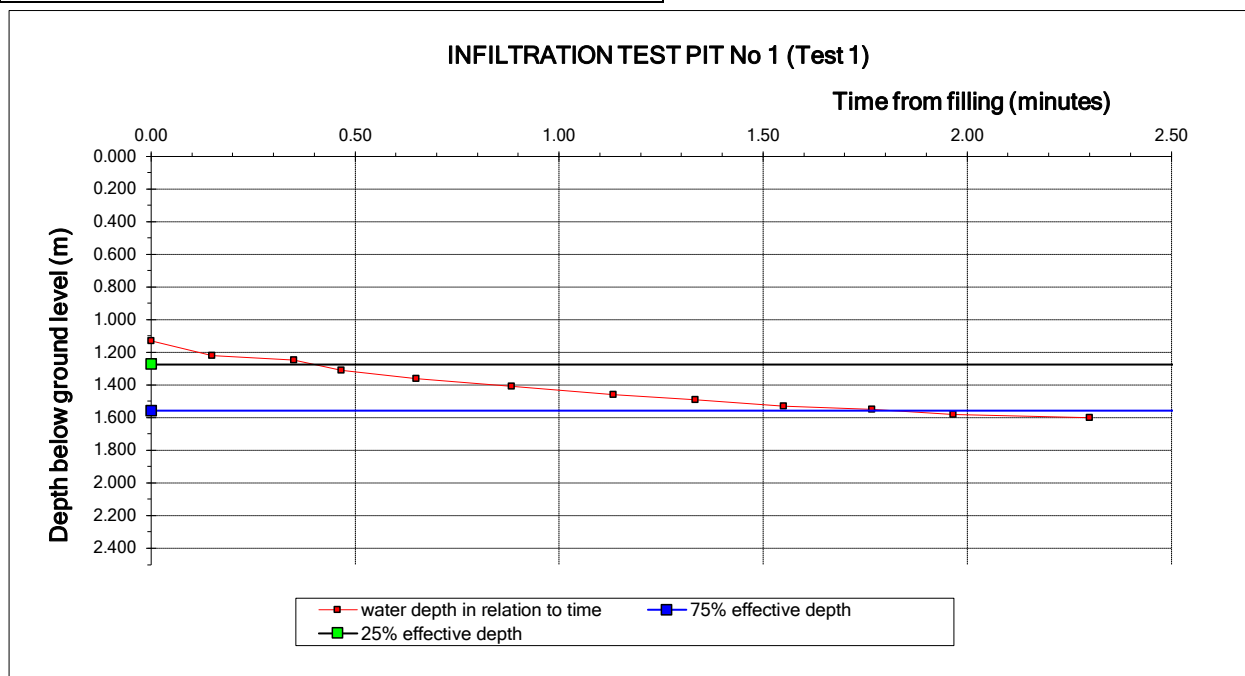
Infiltration Test Data

GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No (Test 1)

[illegible]

<u>Test Pit Dimensions</u>	
Test Pit Length	2.00 m
Test Pit Width	0.75 m
Test Pit Depth	1.70 m
Standing Water Level	m

<u>Infiltration Parameters</u>	
Total Depth	0.570 m
Total Effective Depth	0.570 m
25% Depth	1.273 m
75% Depth	1.558 m
25% Time	0.39 min
75% Time	1.82 min
Free Volume	0.12825 cu.m
Surface Area	3.0675 sq.m
Time of Outflow	1.42 min



Soil infiltration Rate	1.76E+00	m/hr
	4.90E-04	m/sec

[illegible]

<u>Infiltration Parameters</u>	
Total Depth	2.300 m
Total Effective Depth	2.300 m
25% Depth	0.825 m
75% Depth	1.975 m
25% Time	0.63 min
75% Time	2.68 min
Free Volume	0.414 cu.m
Surface Area	7.18 sq.m
Time of Outflow	2.04 min

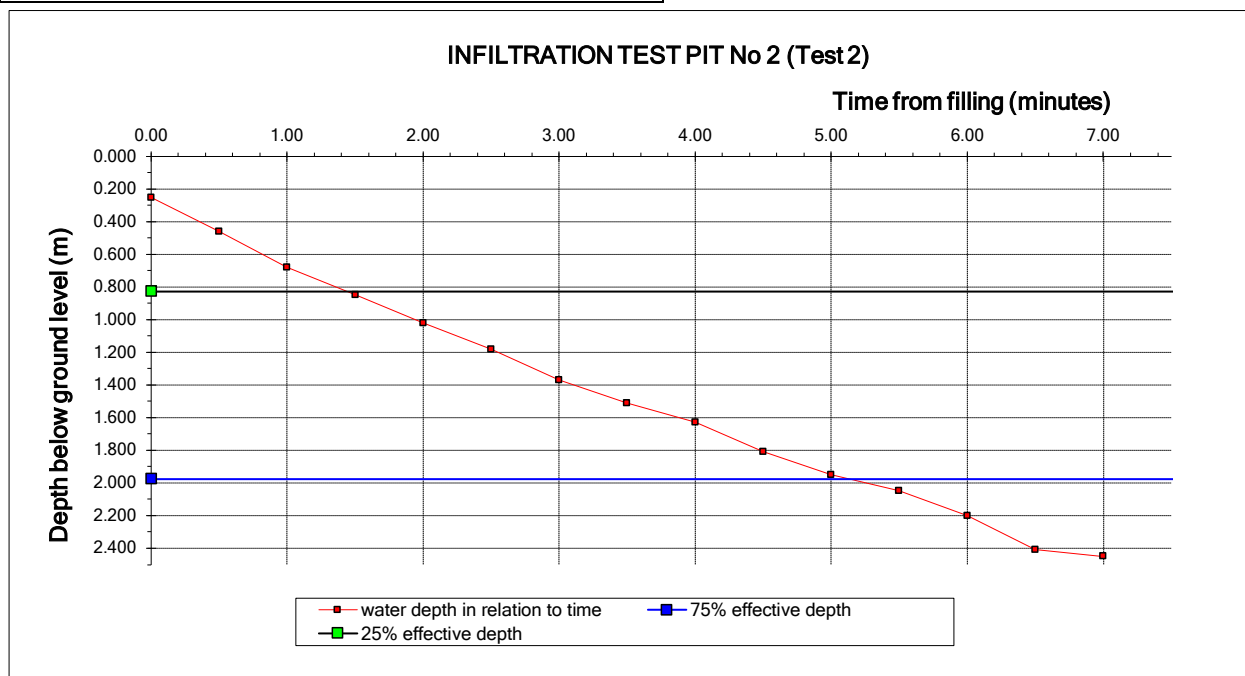


GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No 2 (Test 2)

[illegible]

<u>Test Pit Dimensions</u>	
Test Pit Length	2.00 m
Test Pit Width	0.60 m
Test Pit Depth	2.55 m
Standing Water Level	m

<u>Infiltration Parameters</u>	
Total Depth	2.300 m
Total Effective Depth	2.300 m
25% Depth	0.825 m
75% Depth	1.975 m
25% Time	1.43 min
75% Time	5.13 min
Free Volume	0.414 cu.m
Surface Area	7.18 sq.m
Time of Outflow	3.70 min



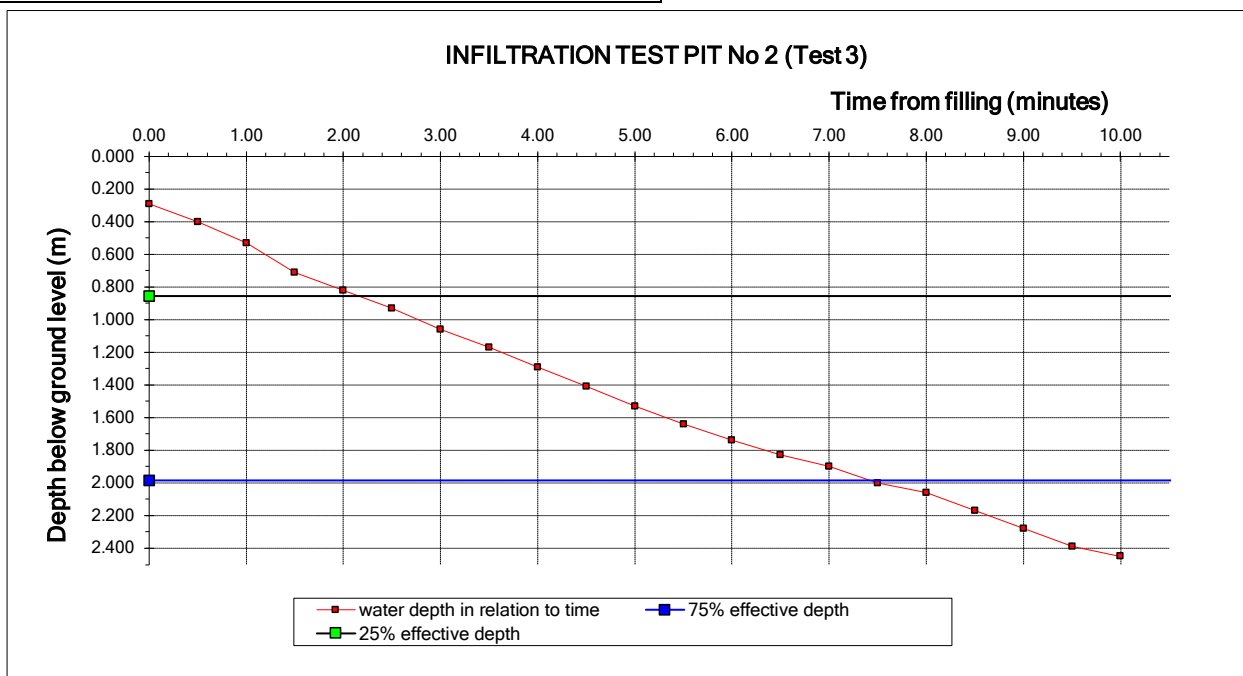
Soil infiltration Rate	9.35E-01	m/hr
	2.60E-04	m/sec

GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No 2 (Test 3)

[illegible]

<u>Test Pit Dimensions</u>	
Test Pit Length	2.00 m
Test Pit Width	0.60 m
Test Pit Depth	2.55 m
Standing Water Level	m

<u>Infiltration Parameters</u>	
Total Depth	2.260 m
Total Effective Depth	2.260 m
25% Depth	0.855 m
75% Depth	1.985 m
25% Time	2.16 min
75% Time	7.43 min
Free Volume	0.4068 cu.m
Surface Area	7.076 sq.m
Time of Outflow	5.27 min



Soil infiltration Rate	6.55E-01	m/hr
	1.82E-04	m/sec

GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No 3 (Test 1)

Time of reading			Absolute Time	Depth below Ground level
hrs	min	sec	mins	m
0	00	00	0.00	0.250
0	00	30	0.50	0.320
0	01	00	1.00	0.320
0	01	30	1.50	0.330
0	02	00	2.00	0.330
0	02	30	2.50	0.330
0	03	00	3.00	0.340
0	03	30	3.50	0.340
0	04	00	4.00	0.350
0	04	30	4.50	0.360
0	05	00	5.00	0.360
0	06	00	6.00	0.360
0	07	00	7.00	0.360
0	08	00	8.00	0.370
0	09	00	9.00	0.380
0	10	00	10.00	0.380
0	11	00	11.00	0.390
0	12	00	12.00	0.390
0	14	00	14.00	0.400
0	15	00	15.00	0.405
0	22	00	22.00	0.430
0	35	00	35.00	0.480
0	43	00	43.00	0.500
0	56	00	56.00	0.540
1	01	30	61.00	0.560
1	14	00	74.00	0.580
1	28	00	88.00	0.620
1	38	30	98.50	0.640
1	52	00	112.00	0.670
2	11	00	131.00	0.715
2	27	00	147.00	0.745
2	38	00	158.00	0.770
3	13	00	193.00	0.830
3	52	30	232.50	0.905
4	16	30	256.50	0.950
4	35	30	275.50	0.980
4	53	30	293.50	1.005

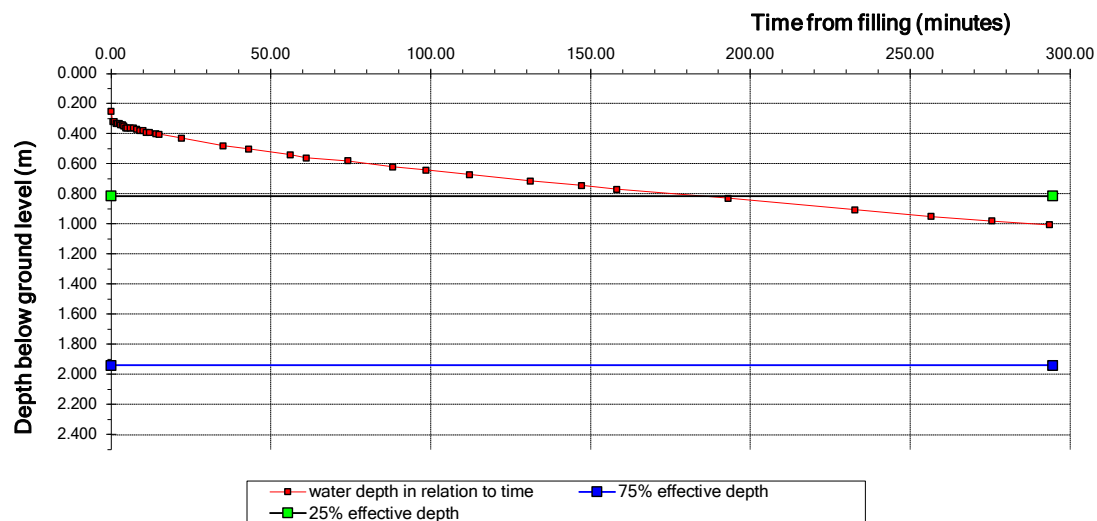
Test Pit Dimensions

Test Pit Length	2.00 m
Test Pit Width	0.60 m
Test Pit Depth	2.50 m
Standing Water Level	m

Infiltration Parameters

Total Depth	2.250 m
Total Effective Depth	2.250 m
25% Depth	0.813 m
75% Depth	1.938 m
25% Time	182.79 min
75% Time	FAIL min
Free Volume	FAIL cu.m
Surface Area	FAIL sq.m
Time of Outflow	FAIL min

INFILTRATION TEST PIT No 3 (Test 1)



Soil infiltration Rate

N/A

m/hr

N/A

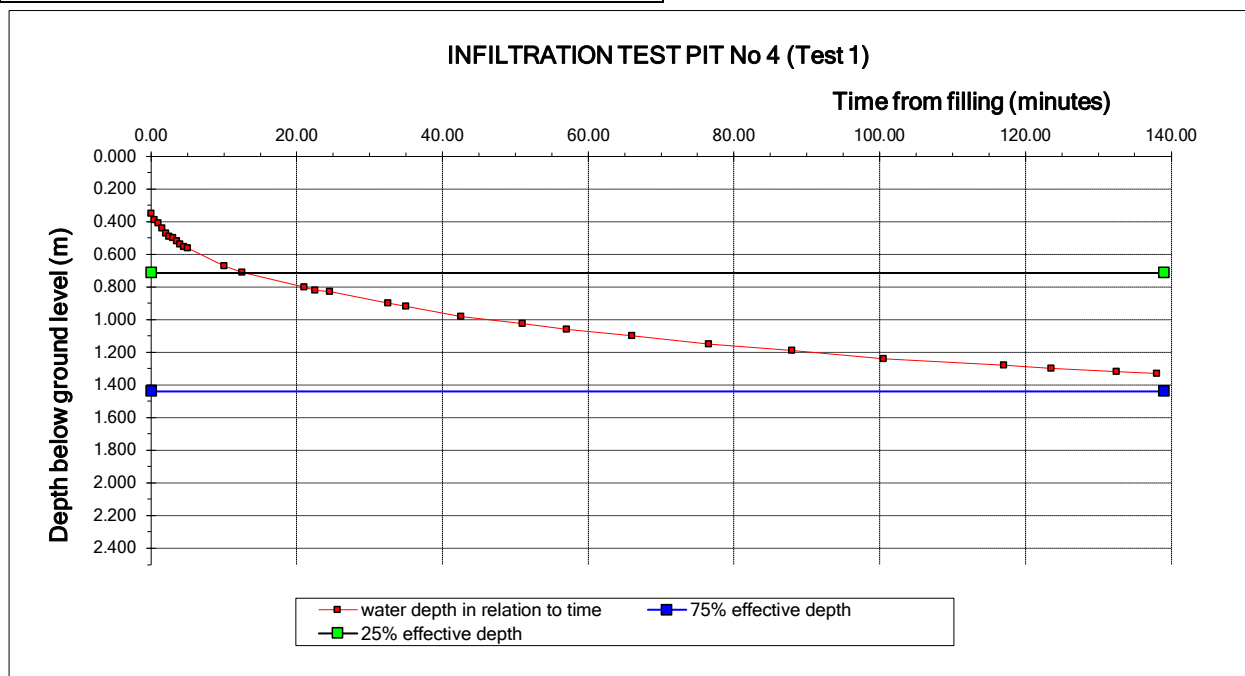
m/sec

GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No 4 (Test 1)

Time of reading			Absolute Time	Depth below Ground level
hrs	min	sec	mins	m
0	00	00	0.00	0.350
0	00	30	0.50	0.390
0	01	00	1.00	0.410
0	01	30	1.50	0.440
0	02	00	2.00	0.470
0	02	30	2.50	0.490
0	03	00	3.00	0.500
0	03	30	3.50	0.520
0	04	00	4.00	0.540
0	04	30	4.50	0.555
0	05	00	5.00	0.560
0	10	00	10.00	0.670
0	12	30	12.50	0.710
0	21	00	21.00	0.800
0	22	30	22.50	0.820
0	24	30	24.50	0.830
0	32	30	32.50	0.900
0	35	00	35.00	0.920
0	42	30	42.50	0.980
0	51	00	51.00	1.025
0	57	00	57.00	1.060
1	06	00	66.00	1.100
1	16	30	76.50	1.150
1	28	00	88.00	1.190
1	40	30	100.50	1.240
1	57	00	117.00	1.280
2	03	30	123.50	1.300
2	12	30	132.50	1.320
2	18	00	138.00	1.330

Test Pit Dimensions	
Test Pit Length	2.00 m
Test Pit Width	0.60 m
Test Pit Depth	1.80 m
Standing Water Level	m

Infiltration Parameters	
Total Depth	1.450 m
Total Effective Depth	1.450 m
25% Depth	0.713 m
75% Depth	1.438 m
25% Time	12.74 min
75% Time	190.82 min <i>(projected based upon trigonometry)</i>
Free Volume	0.261 cu.m
Surface Area	4.97 sq.m
Time of Outflow	178.08 min



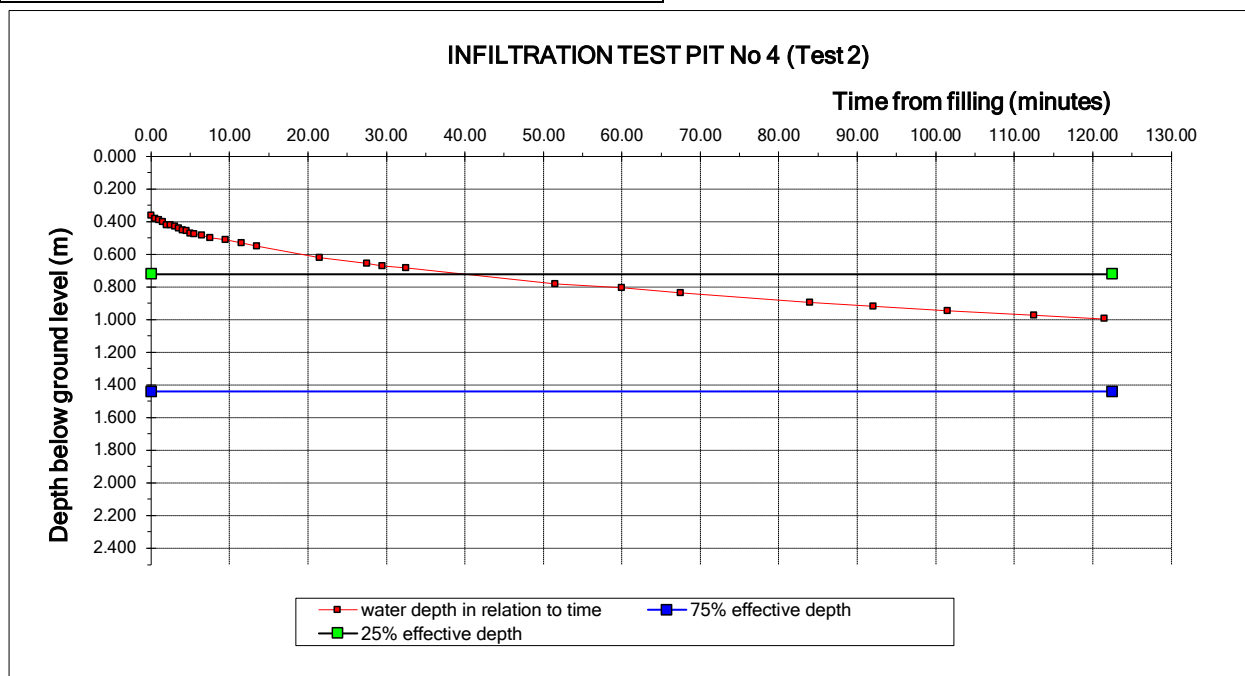
Soil infiltration Rate	1.77E-02	m/hr
	4.91E-06	m/sec

GATEWEN ROAD, WREXHAM
INFILTRATION TEST PIT No 4 (Test 2)

Time of reading			Absolute Time	Depth below Ground level
hrs	min	sec	mins	m
0	00	00	0.00	0.360
0	00	30	0.50	0.380
0	01	00	1.00	0.390
0	01	30	1.50	0.400
0	02	00	2.00	0.420
0	02	30	2.50	0.420
0	03	00	3.00	0.430
0	03	30	3.50	0.440
0	04	00	4.00	0.450
0	04	30	4.50	0.455
0	05	00	5.00	0.470
0	05	30	5.50	0.475
0	06	30	6.50	0.485
0	07	30	7.50	0.500
0	09	30	9.50	0.510
0	11	30	11.50	0.530
0	13	30	13.50	0.550
0	21	30	21.50	0.620
0	27	30	27.50	0.655
0	29	30	29.50	0.670
0	32	30	32.50	0.685
0	51	30	51.50	0.780
1	00	00	60.00	0.805
1	07	30	67.50	0.835
1	24	00	84.00	0.895
1	32	00	92.00	0.920
1	41	30	101.50	0.945
1	52	30	112.50	0.975
2	01	30	121.50	0.995

Test Pit Dimensions	
Test Pit Length	2.00 m
Test Pit Width	0.60 m
Test Pit Depth	1.80 m
Standing Water Level	m

Infiltration Parameters	
Total Depth	1.440 m
Total Effective Depth	1.440 m
25% Depth	0.720 m
75% Depth	1.440 m
25% Time	39.50 min
75% Time	301.42 min <i>(projected based upon trigonometry)</i>
Free Volume	0.2592 cu.m
Surface Area	4.944 sq.m
Time of Outflow	261.92 min



Soil infiltration Rate	1.20E-02	m/hr
	3.34E-06	m/sec



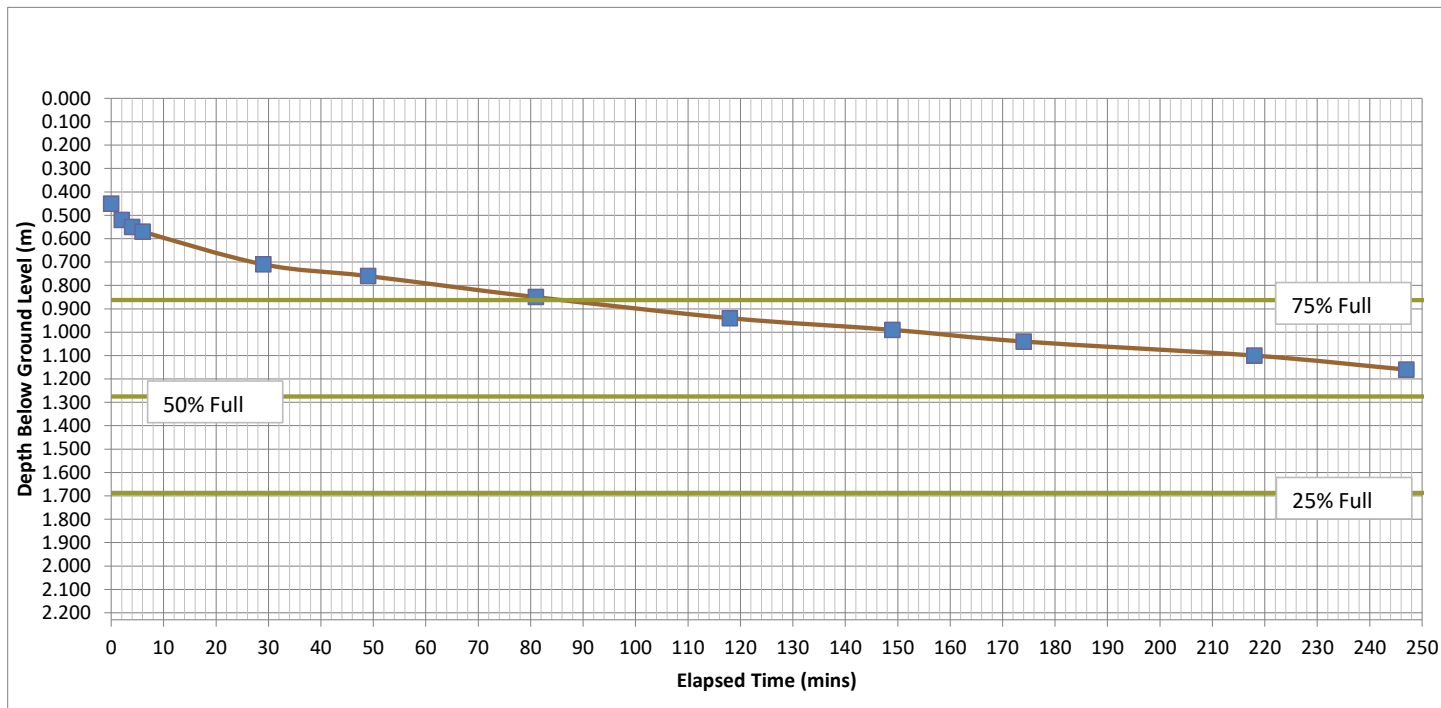
Tel / Fax: 0161 2824518
Web: www.earthenvironmental.co.uk
Email: adam@earthenvironmental.co.uk

(To: BRE 365 1991)

Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume V_{p75-25}
Time tp_{25} at which water is 75% of effective depth (minutes)
Time tp_{25} at which water is 25% of effective depth (minutes)
Time for water level to fall between V_{p75-25}
Time for water level to fall between V_{p75-25}
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

Assumes pit is not filled





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(To: BRE 365 1991)

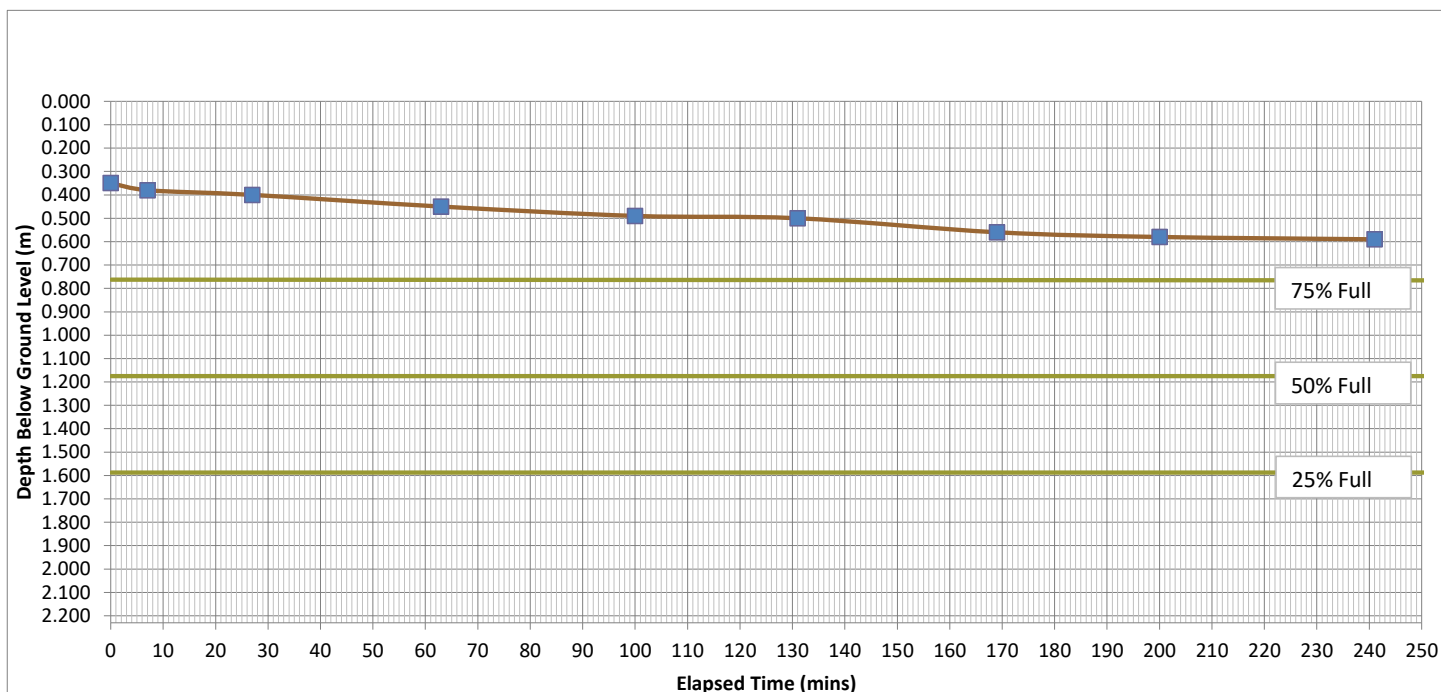
Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

[illegible]

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

SA02 - Test 1	
07/01/2019	
Clay	
2	m
1.65	m
0.6	m
1.7	m
0.35	m
0.59	m
1.24	m
0.76	m
0.83	m
1.18	m
0.41	m
1.59	m
0.825	m3
0.84	m3
N/A	mins
N/A	mins
Infiltration too slow to calculate	mins
Infiltration too slow to calculate	secs
4.82	m2
Infiltration too slow to calculate	m/s

Assumes pit is not filled





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(To: BRE 365 1991)

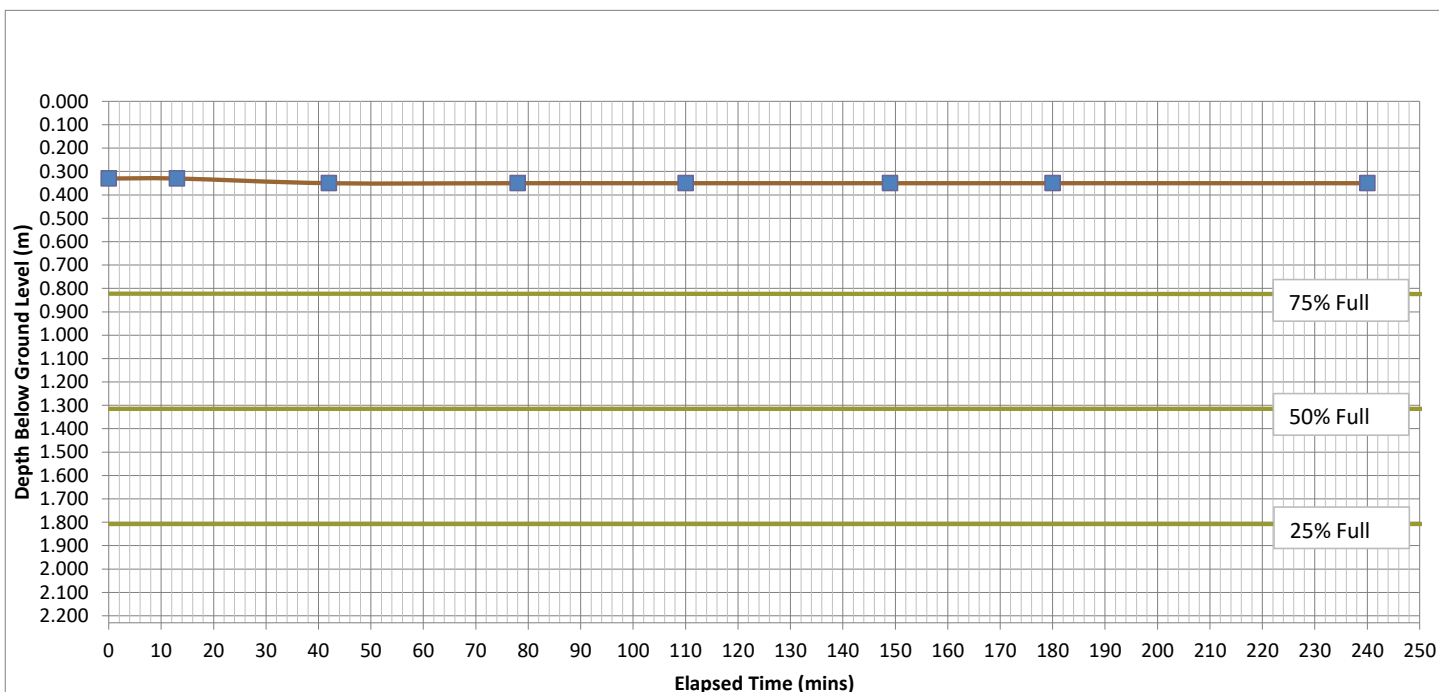
Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

[illegible]

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

SA03 - Test 1	
07/01/2019	
Clay	
2.3	m
1.97	m
0.6	m
1.7	m
0.33	m
0.35	m
1.48	m
0.82	m
0.99	m
1.32	m
0.49	m
1.81	m
0.985	m3
1.00	m3
N/A	mins
N/A	mins
Infiltration too slow to calculate	mins
Infiltration too slow to calculate	secs
5.55	m2
Infiltration too slow to calculate	m/s

Assumes pit is not filled





Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

(To: BRE 365 1991)

[illegible]

Location Reference:	SA04 - Test 1	
Date	07/01/2019	
Geology in test section	Clay	
Depth to Base of Hole	2.0	m
Effective Depth	1.6	m
Hole width	0.6	m
Hole length	1.7	m
Depth to water at start of test below ground level	0.4	m
Depth to water at end of test below ground level	0.73	m
Effective storage depth to 75% full	1.20	m
(Depth below GL)	0.80	m
Effective storage depth to 50% full	0.80	m
(Depth below GL)	1.20	m
Effective storage depth to 25% full	0.40	m
(Depth below GL)	1.60	m
Height to 50% depth	0.800	m3
Effective Storage Volume Vp75-25	0.82	m3
Time tp25 at which water is 75% of effective depth (minutes)	N/A	mins
Time tp25 at which water is 25% of effective depth (minutes)	N/A	mins
Time for water level to fall between Vp75 -25	Infiltration too slow to calculate	mins
Time for water level to fall between Vp75 -25	Infiltration too slow to calculate	secs
Internal surface area of hole up to 50% depth including base	4.70	m2
Soil Infiltration Rate, f	Infiltration too slow to calculate	m/s

The graph illustrates the relationship between the depth of the water table below the ground level and the elapsed time for three different tank fill levels. The y-axis represents the depth below ground level in meters, ranging from 0.000 to 2.000. The x-axis represents the elapsed time in minutes, ranging from 0 to 250. Three horizontal lines represent the constant water table depths for each fill level: 75% Full at approximately 0.800 m, 50% Full at approximately 1.200 m, and 25% Full at approximately 1.600 m. The 75% Full series shows a gradual decrease in depth over time, while the 50% and 25% Full series remain constant.

Elapsed Time (mins)	75% Full (m)	50% Full (m)	25% Full (m)
0	0.400	1.200	1.600
10	0.450	1.200	1.600
20	0.480	1.200	1.600
55	0.500	1.200	1.600
90	0.550	1.200	1.600
125	0.600	1.200	1.600
160	0.650	1.200	1.600
205	0.700	1.200	1.600
245	0.750	1.200	1.600



SOAKAWAY TEST

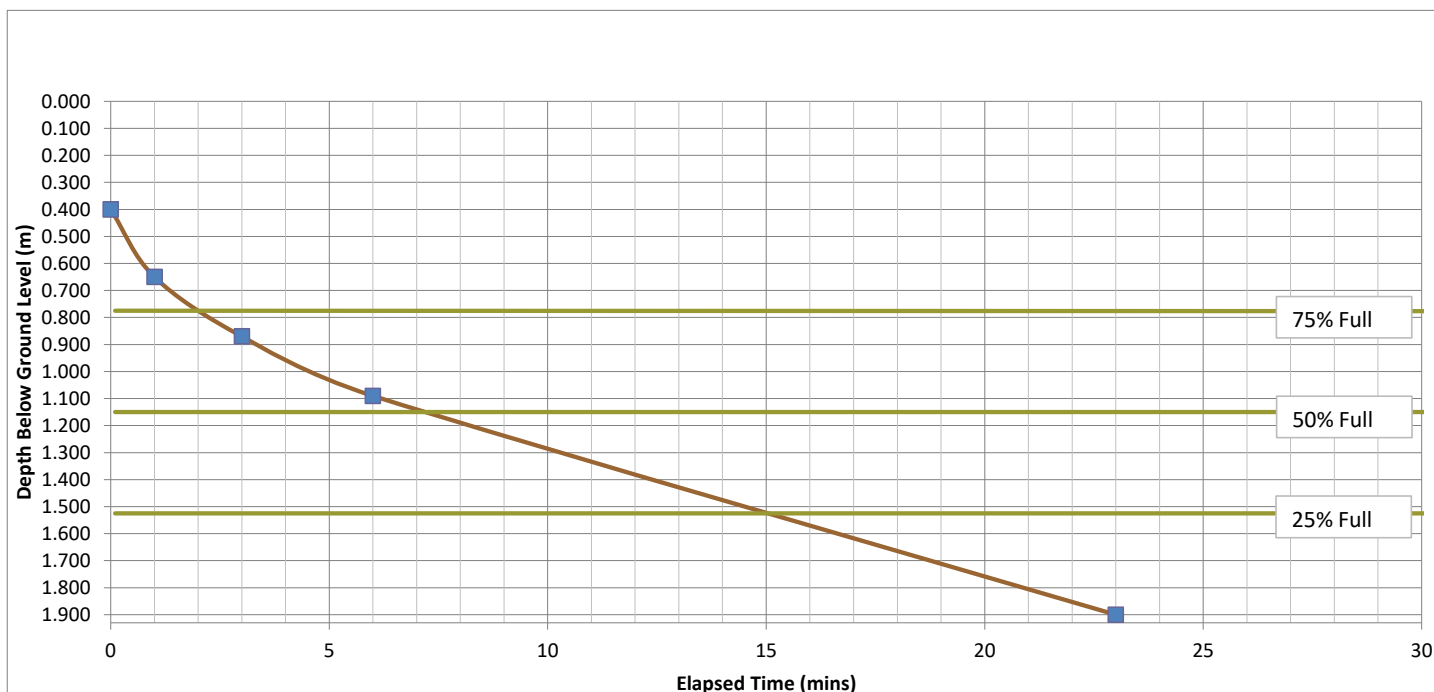
Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

[illegible]

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

SA05 - Test 1	
07/01/2019	
Clay underlain by Sand & Gravel	
1.9	m
1.5	m
0.6	m
1.8	m
0.4	m
1.90	m
1.13	m
0.78	m
0.75	m
1.15	m
0.38	m
1.53	m
0.750	m3
0.81	m3
2.00	mins
15.00	mins
13	mins
780	secs
4.68	m2
2.22E-04	m/s

Assumes pit is not filled





SOAKAWAY TEST

Job No:	A2813
Site:	Wrexham University (Gatewen Road)
Client:	Scott Hughes Design

[illegible]

Location Reference:	SA05 - Test 3	
Date	07/01/2019	
Geology in test section	Clay underlain by Sand & Gravel	
Depth to Base of Hole	1.9	m
Effective Depth	1.5	m
Hole width	0.6	m
Hole length	1.8	m
Depth to water at start of test below ground level	0.4	m
Depth to water at end of test below ground level	1.90	m
Effective storage depth to 75% full	1.13	m
(Depth below GL)	0.78	m
Effective storage depth to 50% full	0.75	m
(Depth below GL)	1.15	m
Effective storage depth to 25% full	0.38	m
(Depth below GL)	1.53	m
Height to 50% depth	0.750	m3
Effective Storage Volume Vp75-25	0.81	m3
Time tp25 at which water is 75% of effective depth (minutes)	6.00	mins
Time tp25 at which water is 25% of effective depth (minutes)	32.00	mins
Time for water level to fall between Vp75 -25	26	mins
Time for water level to fall between Vp75 -25	1560	secs
Internal surface area of hole up to 50% depth including base	4.68	m2
Soil Infiltration Rate, f	1.11E-04	m/s

Assumes pit is not filled

