



**PercolationTests.ie**  
Planning Assessments & Land Surveys

Tel: 087 6636 757    Email: [percolationtests@gmail.com](mailto:percolationtests@gmail.com)    Web: [www.percolationtests.ie](http://www.percolationtests.ie)

# **BRE Digest 365 Report.**

Prepared on behalf of:

**Paul Campbell**

At:

**22 Monastery Crescent,  
Clondalkin,  
Dublin 22**



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### **Scope of Report.**

The findings of this report are the result of an on-site infiltration test. Interpretations and conclusions included in the report are based on knowledge of the ground conditions following detailed investigations, as well as the regional soils, subsoils and bedrock geology, and the experience of the author. David Ryan has prepared this report in line with the best current practice and with all reasonable skill, care and diligence in consideration of the limits imposed by the survey techniques used and resources devoted to it by agreement with the client.

David Ryan accepts no responsibility for any matters arising if any recommendations contained in this document are not carried out, or are partially carried out, without further advice being obtained from David Ryan.

**Cillron Limited**

Newtownmoyaghy, Kilcock, Co. Kildare.  
www.percolationtests.ie  
Tel: 087 6636757

**BRE Digest 365 Test**

Revision: **1.00**

Job No: Soakpit 1 Page: C/01

Section: **22 Monastery Crescent, Clondalkin, Dublin 22**

Prepared By: DR Date: **10/10/2022**

ALTERNATIVE SOAKAWAY SIZES			
trench soakaways			
width of trench [mm]:	450	600	900
required trench length [m]:	2.50	1.98	1.38
ring soakaways			
diameter of ring [mm]:	1500	2100	2400
required pit diameter [m]:	1.34	1.34	1.33

\* Based on effective depth and number of pits as in Soakaway Data table

SUMMARY OF CALCULATIONS	
critical design rainfall duration 't <sub>crit</sub> ' =	120 min
required storage volume 'V <sub>req</sub> ' =	0.44 m <sup>3</sup>
provided storage volume 'V <sub>prov</sub> ' =	0.57 m <sup>3</sup>
utilisation factor =	0.77 .OK
required time to discharge 50% 't <sub>50</sub> ' =	2.18 hours
utilisation factor =	0.09 .OK

GENERAL DATA	
site location:	██████████ Ireland
soakaway type:	infilled pit or trench
impermeable area drained to soakaway 'A' [m <sup>2</sup> ] =	20
60 min rainfall depth of 5 year return period 'R' [mm] =	16
M5-60 to M5-2d rainfall ratio 'r' =	0.28
allowance for climate change:	20%

SOAKAWAY DATA	
soakaway width 'W' [m] =	1.00
soakaway length 'L' [m] =	1.50
total depth from ground level 'D <sub>0</sub> ' [m] =	1.00
depth to drain invert level 'D <sub>d</sub> ' [m] =	0.60
soakaway effective depth 'D <sub>eff</sub> ' [m] =	0.40
free volume in infill aggregate [%] =	95

SOIL INFILTRATION DATA	
allowance for infiltration through soakaway base:	30%
available on-site infiltration test results:	<input checked="" type="radio"/> Yes <input type="radio"/> No
use soakage trial pit table below	
internal surface area of trial pit 'a <sub>p50</sub> ' [m <sup>2</sup> ] =	0.80
storage volume between 75-25% 'V <sub>p</sub> ' [m <sup>3</sup> ] =	0.05
time for water to fall from 75-25% 't <sub>p</sub> ' [min] =	41.50
soil infiltration rate 'γ' [m/s] =	2.51E-05

SOAKAGE TRIAL PIT DATA	
soakage trial pit width 'W <sub>t</sub> ' [m] =	0.50
soakage trial pit length 'L <sub>t</sub> ' [m] =	1.00
total depth from ground level 'D <sub>tb</sub> ' [m] =	1.00
depth to pipe invert level 'D <sub>tp</sub> ' [m] =	0.80
soakage trial pit effective depth 'D <sub>teff</sub> ' [m] =	0.20
free volume in infill aggregate [%] =	100

NOTE: faces of excavation assumed to be vertical

**Infiltration rate: Good – No mottling noted above 1.0m BGL.**

REQUIRED STORAGE CAPACITY PER RAINFALL DURATION													
rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M30-D			ignore			ignore			outflow from soakaway [m <sup>3</sup> ]	required storage [m <sup>3</sup> ]
			Z2	rainfalls [mm]	inflow [m <sup>3</sup> ]	Z2	rainfalls [mm]	inflow [m <sup>3</sup> ]	Z2	rainfalls [mm]	inflow [m <sup>3</sup> ]		
5	0.33	5.21	1.44	9.02	0.18						0.01	0.17	
10	0.48	7.57	1.47	13.31	0.27						0.02	0.24	
15	0.58	9.14	1.48	16.24	0.32						0.03	0.29	
30	0.76	11.96	1.49	21.41	0.43						0.07	0.36	
60	1.00	15.70	1.49	28.08	0.56						0.13	0.43	
120	1.27	19.88	1.47	35.15	0.70						0.26	0.44	
240	1.63	25.53	1.46	44.67	0.89						0.52	0.37	
360	1.86	29.20	1.45	50.67	1.01						0.79	0.23	
600	2.22	34.79	1.43	59.66	1.19						1.31	0.00	
1440	3.05	47.85	1.38	79.36	1.59						3.14	0.00	

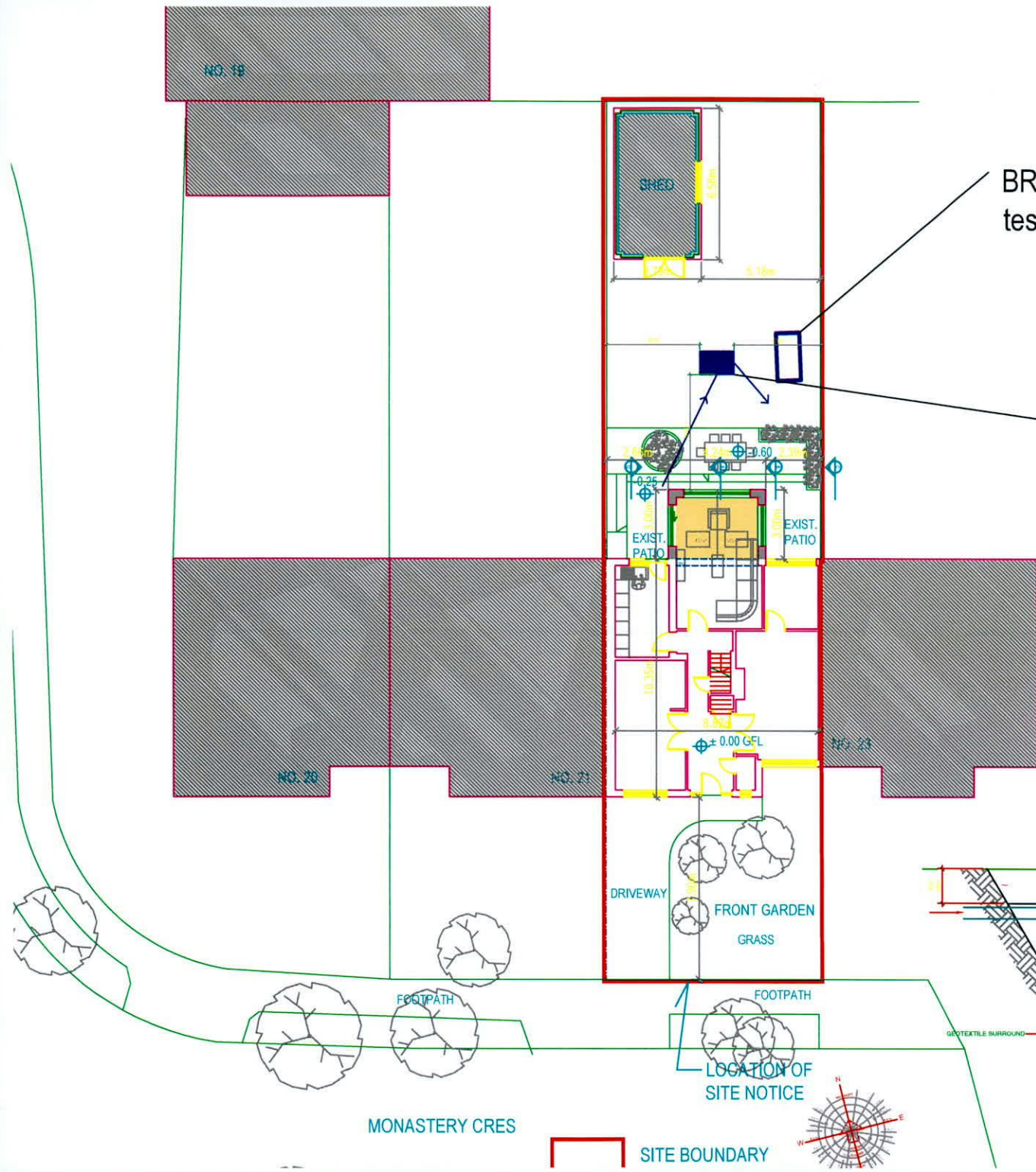
\* Z2 is a growth factor from M5 rainfalls

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS																				
water level measurement N <sup>o</sup> :		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Soakage Trial 1	time [min] =	0	60																	
	depth to water [m] =	0.80	1.00																	
Soakage Trial 2	time [min] =	0	70																	
	depth to water [m] =	0.80	1.00																	
Soakage Trial 3	time [min] =	0	83																	
	depth to water [m] =	0.80	1.00																	



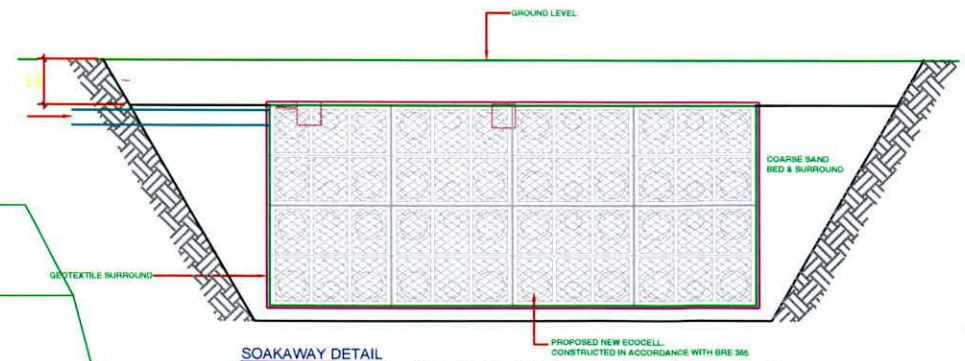
DETAILS TO BE CHECKED AND VERIFIED BY THE BUILDING CONTRACTOR, SUB-CONTRACTOR OR DIRECT LABOUR CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORKS OR AGREEMENTS.

CLIENT: Paul Campbell	
PROJECT: 22 Monastery Crescent, Clondalkin, Dublin 22	
Cillron Limited Site Suitability Assessments & Land Surveys Newtownmoyaghy Kilcock Co.Meath Ireland Mobile: 0876636757 Email: percolationtests@gmail.com	
DRAWN BY:	SCALE: 1:250
ORIGIN DATE: 10/10/2022	DRAWING NUMBER:
FOR PLANNING PURPOSES ONLY	



BRE digest 365 test hole.

Min 0.44m<sup>3</sup> of free storage required.  
1.5m x 1.0m with an effective depth of 0.40m (see attached calc page).  
Soakpit to be located min 5m from any building & 3m from any boundary. The soakpit should also include an overflow to the existing SW drainage.



SOAKAWAY DETAIL

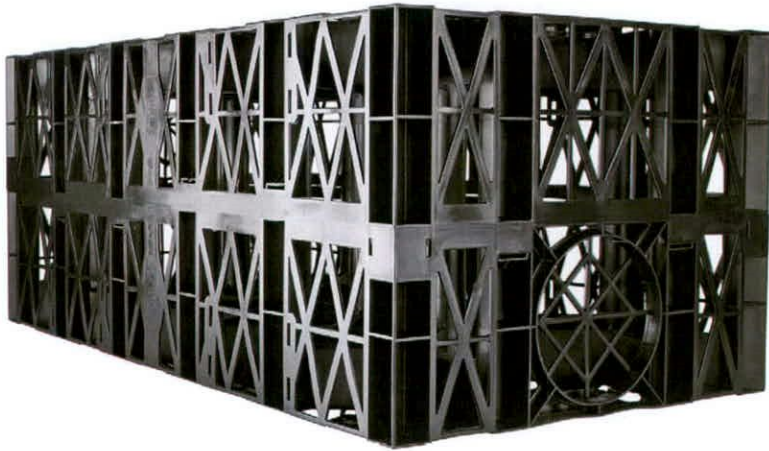
Example cross section not to scale.

MONASTERY CRES

SITE BOUNDARY

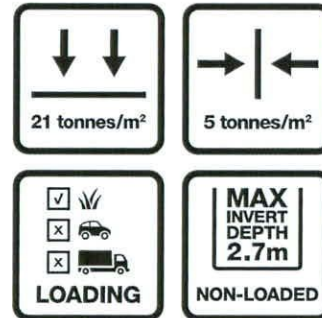
LOCATION OF SITE NOTICE





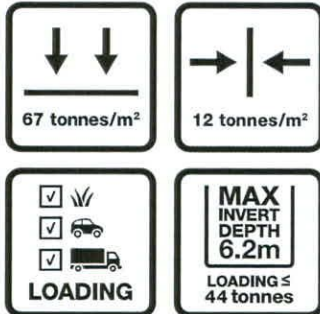
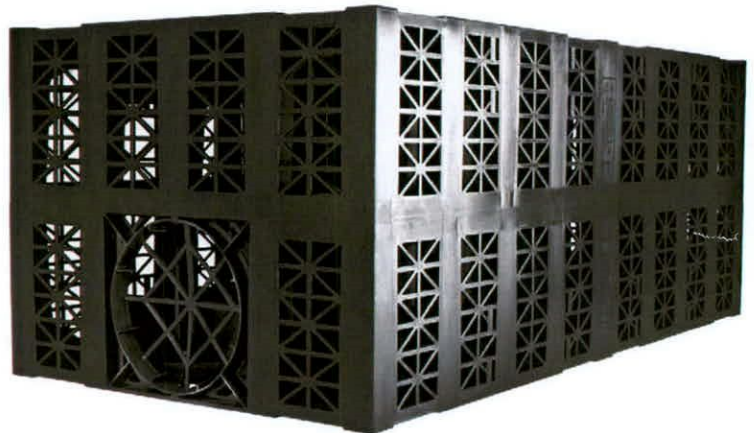
## AquaCell ECO

ECO is manufactured from specially reformulated, recycled material and has been designed for shallow, non-trafficked, landscaped applications.



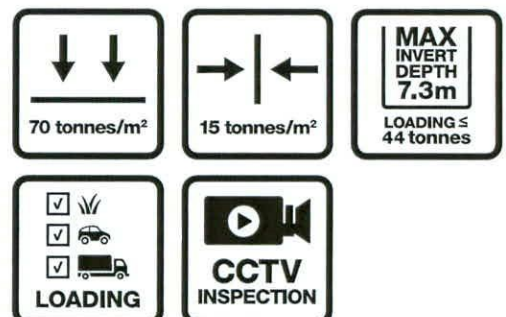
## AquaCell CORE-R

CORE-R has been designed for use in deep applications, subject to both regular and heavy traffic loadings, such as cars and HGV's.



## AquaCell PLUS-R

PLUS-R has been designed primarily for use in applications where inspection is required, and is suitable for use in all applications from landscaped areas to heavily trafficked areas.



Met Eireann  
Return Period Rainfall Depths for sliding Durations  
Irish Grid: Easting: 313474, Northing: 227028,

DURATION	Interval		Years														
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,	
5 mins	2.7,	3.9,	4.6,	5.6,	6.3,	6.9,	8.8,	10.9,	12.4,	14.5,	16.4,	17.9,	20.2,	22.0,	23.5,	N/A,	
10 mins	3.7,	5.4,	6.4,	7.8,	8.8,	9.6,	12.2,	15.3,	17.3,	20.2,	22.8,	24.9,	28.1,	30.6,	32.7,	N/A,	
15 mins	4.4,	6.4,	7.5,	9.2,	10.4,	11.3,	14.4,	17.9,	20.3,	23.8,	26.9,	29.3,	33.1,	36.0,	38.5,	N/A,	
30 mins	5.8,	8.3,	9.8,	11.9,	13.4,	14.6,	18.4,	22.9,	25.8,	30.0,	33.8,	36.8,	41.4,	45.0,	48.1,	N/A,	
1 hours	7.6,	10.9,	12.7,	15.5,	17.3,	18.8,	23.6,	29.1,	32.8,	38.0,	42.7,	46.3,	51.9,	56.3,	60.0,	N/A,	
2 hours	10.1,	14.3,	16.6,	20.0,	22.4,	24.2,	30.2,	37.1,	41.6,	48.1,	53.8,	58.3,	65.1,	70.5,	75.0,	N/A,	
3 hours	11.8,	16.7,	19.4,	23.3,	26.0,	28.1,	35.0,	42.7,	47.9,	55.1,	61.6,	66.6,	74.4,	80.4,	85.4,	N/A,	
4 hours	13.3,	18.7,	21.6,	26.0,	29.0,	31.3,	38.8,	47.3,	52.9,	60.8,	67.8,	73.3,	81.7,	88.2,	93.6,	N/A,	
6 hours	15.7,	21.9,	25.3,	30.3,	33.6,	36.3,	44.8,	54.5,	60.8,	69.8,	77.7,	83.8,	93.3,	100.6,	106.7,	N/A,	
9 hours	18.4,	25.7,	29.5,	35.2,	39.1,	42.1,	51.8,	62.8,	70.0,	80.1,	89.0,	95.9,	106.5,	114.7,	121.5,	N/A,	
12 hours	20.7,	28.7,	32.9,	39.3,	43.5,	46.8,	57.5,	69.5,	77.3,	88.3,	98.0,	105.5,	117.0,	125.9,	133.3,	N/A,	
18 hours	24.4,	33.6,	38.5,	45.7,	50.6,	54.3,	66.5,	80.1,	88.9,	101.3,	112.3,	120.7,	133.6,	143.6,	151.8,	N/A,	
24 hours	27.4,	37.6,	43.0,	50.9,	56.3,	60.4,	73.7,	88.6,	98.2,	111.7,	123.7,	132.8,	146.8,	157.7,	166.6,	197.6,	
2 days	34.4,	46.1,	52.1,	61.0,	66.9,	71.4,	85.9,	101.8,	112.0,	126.2,	138.6,	148.1,	162.5,	173.5,	182.6,	213.8,	
3 days	40.0,	52.9,	59.5,	69.1,	75.5,	80.3,	95.7,	112.6,	123.3,	138.2,	151.1,	160.9,	175.8,	187.1,	196.5,	228.4,	
4 days	45.0,	58.9,	65.9,	76.2,	83.0,	88.1,	104.3,	122.0,	133.2,	148.7,	162.0,	172.2,	187.5,	199.2,	208.7,	241.4,	
6 days	53.7,	69.3,	77.2,	88.5,	95.9,	101.6,	119.3,	138.3,	150.4,	166.8,	181.0,	191.8,	207.9,	220.2,	230.2,	264.2,	
8 days	61.4,	78.5,	87.0,	99.3,	107.3,	113.3,	132.3,	152.5,	165.3,	182.6,	197.6,	208.8,	225.7,	238.5,	248.9,	284.2,	
10 days	68.5,	86.8,	96.0,	109.1,	117.6,	124.0,	144.0,	165.3,	178.7,	196.9,	212.5,	224.2,	241.8,	255.0,	265.8,	302.2,	
12 days	75.1,	94.6,	104.4,	118.2,	127.2,	133.9,	154.9,	177.2,	191.2,	210.1,	226.2,	238.4,	256.6,	270.3,	281.4,	318.8,	
16 days	87.4,	109.1,	119.8,	135.0,	144.7,	152.1,	174.9,	198.8,	213.9,	234.1,	251.3,	264.2,	283.4,	297.9,	309.6,	349.0,	
20 days	98.8,	122.4,	134.0,	150.3,	160.8,	168.7,	193.0,	218.5,	234.5,	255.8,	273.9,	287.5,	307.7,	322.9,	335.2,	376.2,	
25 days	112.2,	137.9,	150.5,	168.2,	179.5,	187.9,	214.0,	241.2,	258.2,	280.8,	300.0,	314.3,	335.6,	351.5,	364.4,	407.3,	

NOTES:

N/A Data not available

These values are derived from a Depth Duration Frequency (DDF) Model

For details refer to:

'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',  
Available for download at [www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies\\_TN61.pdf](http://www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf)





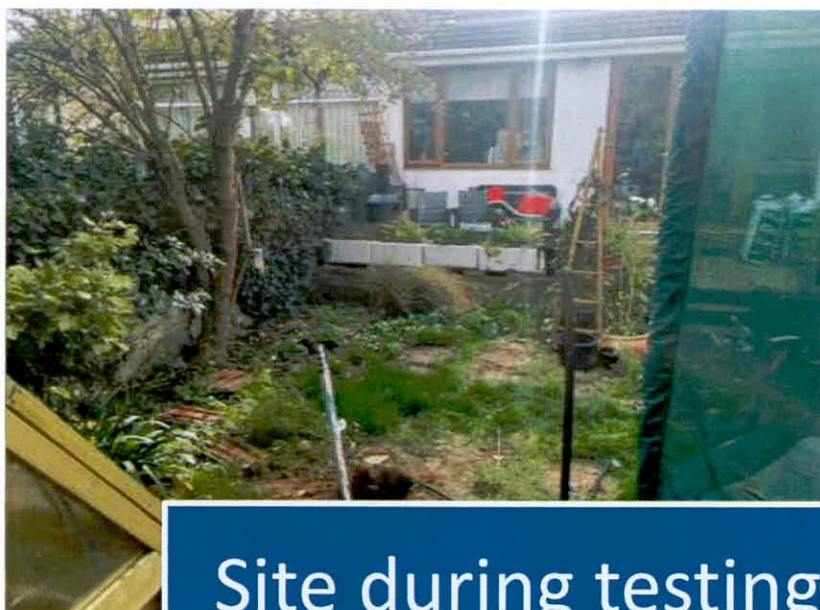
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BRE digest test hole



Site during testing



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Dublin 17

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T: +353 1 524 2800

[sound.ie](http://sound.ie)

You're safe with *Sound*.

David Ryan  
Cillron Limited  
Newtownmoyaghy  
Kilcock  
Co Meath

Date: 22/03/2022  
Reference: RYDA01001

### INSURANCE CERTIFICATE

To Whom It May Concern

We confirm we act as Insurance Brokers to the above and set out below a summary of cover we have arranged:

**Business Description:** *Soil Engineer (Percolation Testing)*

#### PROFESSIONAL INDEMNITY

<b>Policy No.</b>	PID00024862
<b>Insurer:</b>	Accredited Insurance (Europe) Ltd
<b>Period of Insurance:</b>	04/03/2022 to 03/03/2023
<b>Limit of Indemnity:</b>	€1,000,000

*Subject always to Insurers policy wording, warranties, conditions, restrictions & exclusions a copy of which is available on request.*

We trust this is in order but if you have any queries, please do not hesitate to contact us.

Yours sincerely,

Gary Kinsella  
Commercial Broker  
P: (01) 524 1415  
E: [Gary@sound.ie](mailto:Gary@sound.ie)