



Quotation for the supply of Rainwater Harvesting Equipment

Client :

Bruno Raworth

Site Reference :

**Soakaway Report for
7 AlleyneWay, Elmer Sands. PO22 6JZ**

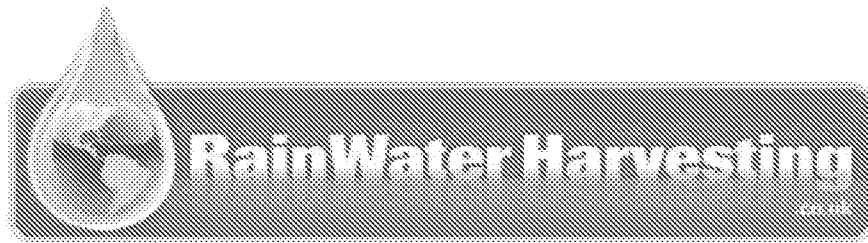
Prepared by:

Ian Woodcock



Our reference : IMW229293

Date of proposal : 05/03/2019



Your Proposal

Thank you for your enquiry and as requested please find the following information regarding our proposed attenuation system.

Drainage anti-flooding blocks (Graf Bloc) with 300-litre capacity for rapid drainage of land. Surface water is diverted or soaks down into weight resistant crates and from there dissipate into the lower ground clearing water quickly from the surface.

The rigid crates are made in black polypropylene (PP) and measure 1200mm (l) x 600mm (w) x 420mm(h) and will hold a maximum capacity of 300 litres gross or a working volume of 285 litres.

The size of the Attenuation tank is

L 4.8 x W 3.6 x D 0.84 m

Please see calculations on page 4

The crates can be connected together into larger grids or blocks and wrapped in a geo-textile to slow the drainage of the water forming the equivalent of an underground pond.

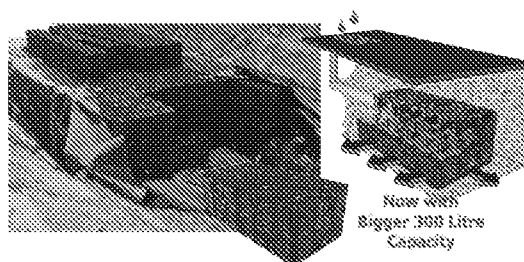
Easy to install

The Graf Rain Bloc can be installed in rows or block form, with 1 to a maximum of 10 layers, depending on the local conditions and the desired storage capacity. installing the module is easy, fast and variable. it can be installed without heavy equipment - a Rain Bloc weighs just 15 kg. The individual modules are connected using practical fast connectors



Components and Prices – Supply Only

Product Code : **RainBloc**



Components

Product Code	Description	Qty
360014	GRAF RAIN BLOC 300	48
RWH-GT	NON WOVEN GEOTEXTILE TERREX NW8	67.5 m2

Price : £1,873.00 (£2,247.60 Inc. VAT)

UK delivery is included in the price (Highlands and islands extra)

7 Alleyne Way, Elmer Sands. PO22 6JZ

TEST PIT 1					
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Length	Width	Height			
	1	0.3	1.2	Volume=	0.18
				Surface Area=	2.16
Time/mins					
	320			Infiltration rate=	0.0157068
	311				
	324				
Average Time/hours	5.30555556				

TEST PIT 2					
Length	Width	Height			
	1	0.3	1.2	Volume=	0.18
				Surface Area=	2.16
Time/mins					
	304			Infiltration rate=	0.0161117
	318				
	309				
Average Time/hours	5.17222222				

SITE INFILTRATION RATE	0.0157068
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Rainwater Harvesting Ltd					Page 1																																																																																																																																																																																																																			
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Summary of Results for 100 year Return Period (+40%) Half Drain Time : 1308 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>0.154</td><td>0.154</td><td>0.0</td><td>2.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>0.206</td><td>0.206</td><td>0.0</td><td>3.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>0.261</td><td>0.261</td><td>0.0</td><td>4.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>0.318</td><td>0.318</td><td>0.0</td><td>5.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>0.349</td><td>0.349</td><td>0.1</td><td>5.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>0.368</td><td>0.368</td><td>0.1</td><td>6.0</td><td>O K</td></tr><tr><td>360 min Summer</td><td>0.391</td><td>0.391</td><td>0.1</td><td>6.4</td><td>O K</td></tr><tr><td>480 min Summer</td><td>0.405</td><td>0.405</td><td>0.1</td><td>6.7</td><td>O K</td></tr><tr><td>600 min Summer</td><td>0.413</td><td>0.413</td><td>0.1</td><td>6.8</td><td>O K</td></tr><tr><td>720 min Summer</td><td>0.417</td><td>0.417</td><td>0.1</td><td>6.8</td><td>O K</td></tr><tr><td>960 min Summer</td><td>0.417</td><td>0.417</td><td>0.1</td><td>6.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>0.410</td><td>0.410</td><td>0.1</td><td>6.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>0.395</td><td>0.395</td><td>0.1</td><td>6.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>0.378</td><td>0.378</td><td>0.1</td><td>6.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>0.343</td><td>0.343</td><td>0.1</td><td>5.6</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>0.310</td><td>0.310</td><td>0.0</td><td>5.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>0.279</td><td>0.279</td><td>0.0</td><td>4.6</td><td>O K</td></tr><tr><td>8640 min 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Rainwater Harvesting Ltd					Page 2
Unit A Harrier Park Orton Southgate Peterborough PE2 6YQ					
Date 05/03/2019 12:56		Designed by RainWater Harves...			
File IMW 7 Alleyne Way PO22 ...		Checked by			
XP Solutions		Source Control 2016.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	0.231	0.231	0.0	3.8	O K
60 min Winter	0.294	0.294	0.0	4.8	O K
120 min Winter	0.358	0.358	0.1	5.9	O K
180 min Winter	0.393	0.393	0.1	6.5	O K
240 min Winter	0.415	0.415	0.1	6.8	O K
360 min Winter	0.444	0.444	0.1	7.3	O K
480 min Winter	0.461	0.461	0.1	7.6	O K
600 min Winter	0.471	0.471	0.1	7.7	O K
720 min Winter	0.478	0.478	0.1	7.9	O K
960 min Winter	0.482	0.482	0.1	7.9	O K
1440 min Winter	0.473	0.473	0.1	7.8	O K
2160 min Winter	0.454	0.454	0.1	7.5	O K
2880 min Winter	0.430	0.430	0.1	7.1	O K
4320 min Winter	0.379	0.379	0.1	6.2	O K
5760 min Winter	0.330	0.330	0.0	5.4	O K
7200 min Winter	0.285	0.285	0.0	4.7	O K
8640 min Winter	0.244	0.244	0.0	4.0	O K
10080 min Winter	0.207	0.207	0.0	3.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	83.789	0.0	41		
60 min Winter	53.779	0.0	70		
120 min Winter	33.337	0.0	128		
180 min Winter	24.832	0.0	186		
240 min Winter	20.006	0.0	244		
360 min Winter	14.706	0.0	360		
480 min Winter	11.818	0.0	476		
600 min Winter	9.966	0.0	590		
720 min Winter	8.665	0.0	704		
960 min Winter	6.943	0.0	924		
1440 min Winter	5.071	0.0	1330		
2160 min Winter	3.696	0.0	1652		
2880 min Winter	2.949	0.0	2112		
4320 min Winter	2.142	0.0	3028		
5760 min Winter	1.705	0.0	3872		
7200 min Winter	1.427	0.0	4688		
8640 min Winter	1.235	0.0	5528		
10080 min Winter	1.093	0.0	6256		
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File IMW 7 Alleyne Way PO22 ...	Checked by																			
XP Solutions		Source Control 2016.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 1.000 <u>Cellular Storage Structure</u> Invert Level (m) 0.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.01571 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.01571 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>17.3</td> <td>17.3</td> <td>0.841</td> <td>0.0</td> <td>31.3</td> </tr> <tr> <td>0.840</td> <td>17.3</td> <td>31.3</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	17.3	17.3	0.841	0.0	31.3	0.840	17.3	31.3			
Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)															
0.000	17.3	17.3	0.841	0.0	31.3															
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Event: 960 min Winter

