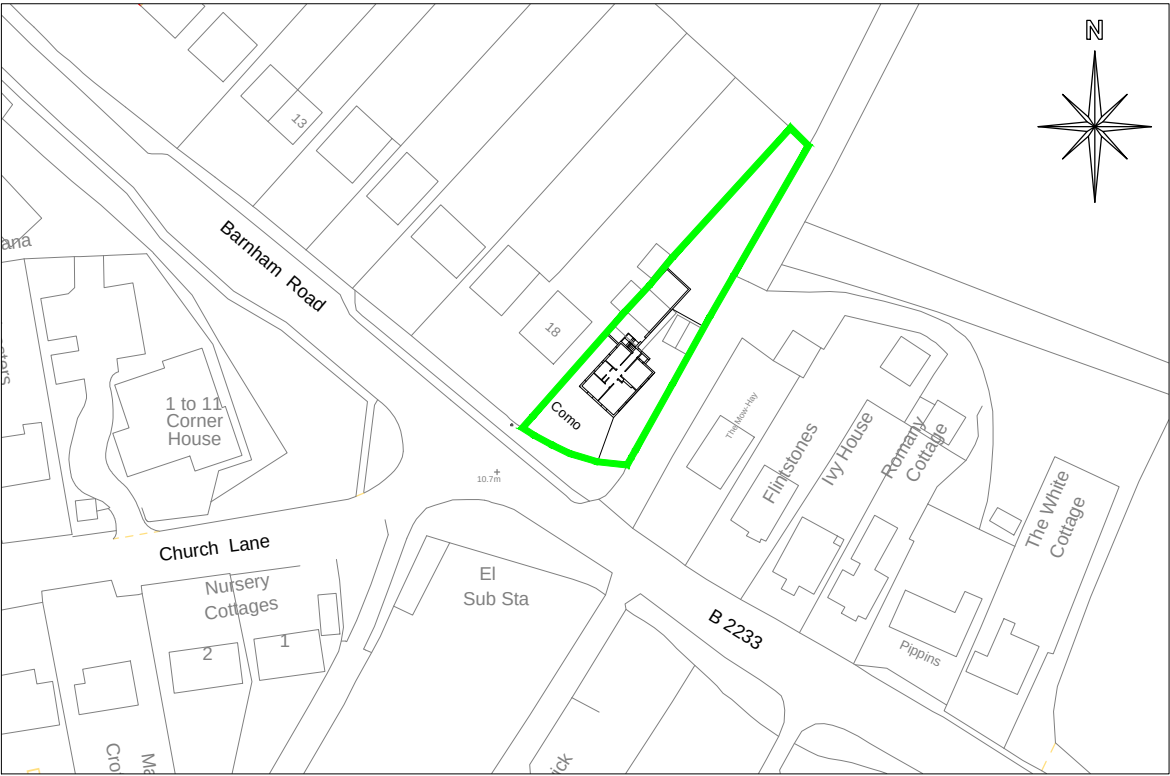
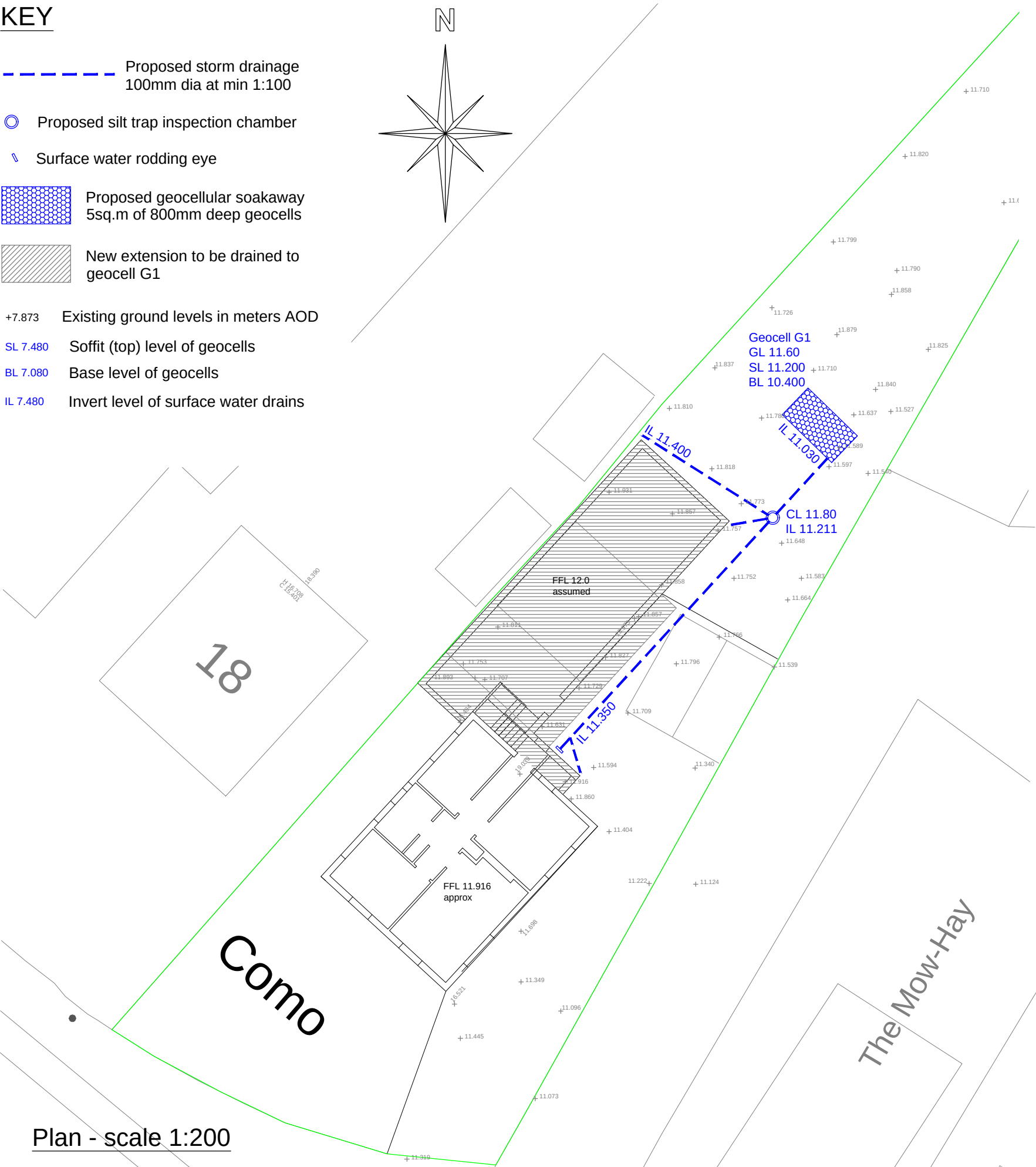
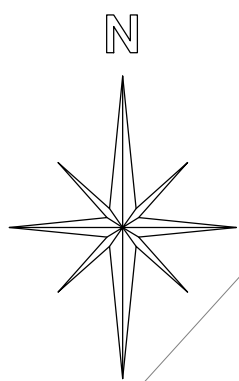


KEY

- Proposed storm drainage
100mm dia at min 1:100
- Proposed silt trap inspection chamber
- Surface water rodding eye
- Proposed geocellular soakaway
5sq.m of 800mm deep geocells
- New extension to be drained to
geocell G1
- +7.873 Existing ground levels in meters AOD
- SL 7.480 Soffit (top) level of geocells
- BL 7.080 Base level of geocells
- IL 7.480 Invert level of surface water drains



Location plan - scale 1:1250

Surface Water Drainage Design Notes

Ground conditions here comprise Topsoil over River Terrace Deposits (soft to firm silty sandy clays) over London Clay. The River Terrace Deposits were found at 0.15m below ground level and were found to comprise soft to firm silt and silt clays with some gravel and occasional large flints, becoming slightly chalky, more gravelly and very compact with depth. The London Clay was not encountered in test holes that extended to 1.5m below ground level.

Groundwater was not initially encountered during the investigations in mid-February 2018 but rose after the testing to 1.42m below ground level at its highest after 2 days.

The drainage design is based on percolation tests carried out to BRE 365 principles in two separate test holes in mid-February 2018. An average soil infiltration rate of 3.117×10^{-5} m/s was obtained, to which a factor of safety of 1.5 has been applied.

A geocellular soakaway has been designed, 5.0sq.m in area x 0.8m deep, which will be suitable to drain the new extension (hatched) to the dwelling without flooding on a 1 in 100 year rainfall event + 30% climate change addition.

NOTE

This drawing had been produced for discharge of planning conditions only. All levels and details to be checked for Building Regulations approval and construction purposes

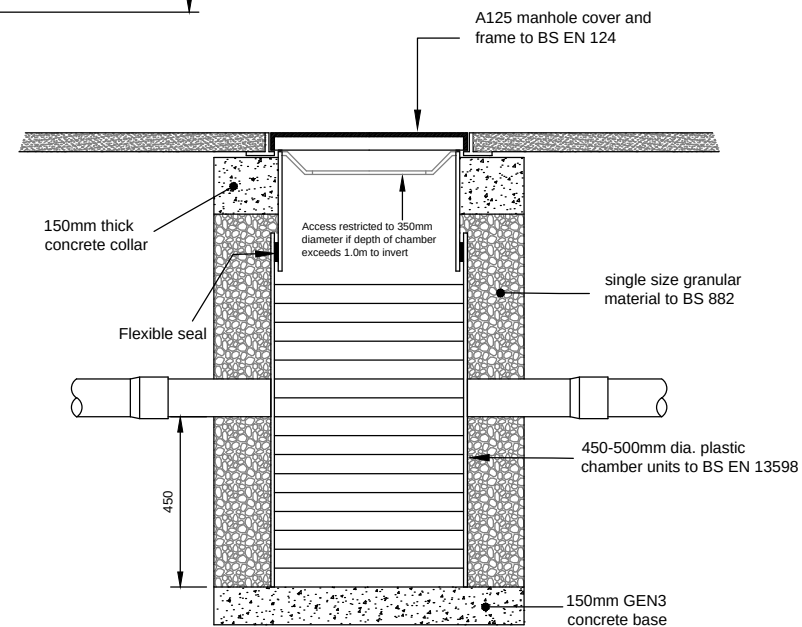
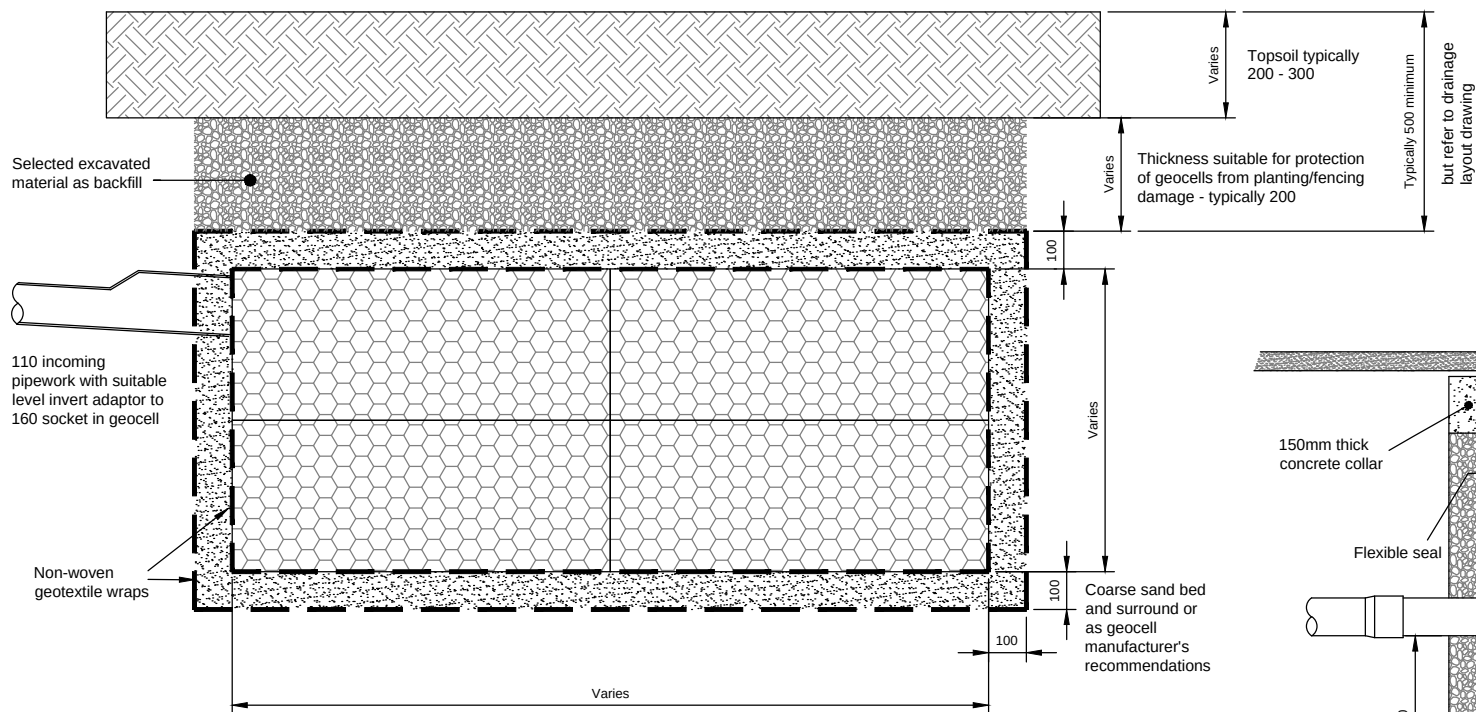
-	Original	RTFC	21.2.18
Rev.	Description	Drn.	Date

Project
Como Barnham Road Eastergate

Client
Rosemary Burrow
Drawing Title
Surface Water Drainage

Robert Clark Associates Ltd Chartered Civil Engineers Willow Cottage, Herne Lane, Rustington West Sussex BN16 3EE T: 01903 778945 E: rca-ltd@talktalk.net

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Scale As shown		At original A3	
Drawing Number 1779/D1.1		Revision -	



						Client	Rosemary Burrow		Title	Construction Details for rear Soakaway and silt trap			Robert Clark Associates Ltd Chartered Civil Engineers Willow Cottage, Herne Lane Rustington, West Sussex BN16 3EE Tel: 01903 778945 Fax: 01903 778967		
						Project	Como, Barnham Road, Eastergate								
						Notes									
-	Original	PC		RTFC	22.2.18				Scale	1:20	At original	A4	© Robert Clark Associates Ltd		
Rev.	Description	App.	Chk.	Drn.	Date				Drawing Number	1779/D5.1			Revision	-	

Robert Clark Associates		Page 1
Willow Cottage Herne Lane Rustington BN16 3EE	Como, Barnham Road Eastergate Geocellular soakaway	
Date 22.2.18 File Rear geocell.SRCX	Designed by RTFC Checked by	
Micro Drainage	Source Control 2016.1	

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 150 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	10.784	0.384	0.2	1.8	0 K
30 min Summer	10.897	0.497	0.2	2.4	0 K
60 min Summer	10.994	0.594	0.2	2.8	0 K
120 min Summer	11.043	0.643	0.2	3.1	0 K
180 min Summer	11.049	0.649	0.2	3.1	0 K
240 min Summer	11.041	0.641	0.2	3.0	0 K
360 min Summer	11.014	0.614	0.2	2.9	0 K
480 min Summer	10.984	0.584	0.2	2.8	0 K
600 min Summer	10.955	0.555	0.2	2.6	0 K
720 min Summer	10.926	0.526	0.2	2.5	0 K
960 min Summer	10.873	0.473	0.2	2.2	0 K
1440 min Summer	10.783	0.383	0.2	1.8	0 K
2160 min Summer	10.678	0.278	0.2	1.3	0 K
2880 min Summer	10.600	0.200	0.1	1.0	0 K
4320 min Summer	10.500	0.100	0.1	0.5	0 K
5760 min Summer	10.452	0.052	0.1	0.2	0 K
7200 min Summer	10.443	0.043	0.1	0.2	0 K
8640 min Summer	10.437	0.037	0.1	0.2	0 K
10080 min Summer	10.433	0.033	0.1	0.2	0 K
15 min Winter	10.832	0.432	0.2	2.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	115.731	0.0	18
30 min Summer	77.804	0.0	32
60 min Summer	49.937	0.0	62
120 min Summer	30.956	0.0	106
180 min Summer	23.058	0.0	138
240 min Summer	18.577	0.0	172
360 min Summer	13.656	0.0	240
480 min Summer	10.974	0.0	310
600 min Summer	9.254	0.0	380
720 min Summer	8.046	0.0	446
960 min Summer	6.447	0.0	578
1440 min Summer	4.709	0.0	838
2160 min Summer	3.432	0.0	1212
2880 min Summer	2.739	0.0	1560
4320 min Summer	1.989	0.0	2252
5760 min Summer	1.583	0.0	2936
7200 min Summer	1.325	0.0	3672
8640 min Summer	1.147	0.0	4352
10080 min Summer	1.015	0.0	5104
15 min Winter	115.731	0.0	18

Robert Clark Associates				Page 2	
Willow Cottage Herne Lane Rustington BN16 3EE		Como, Barnham Road Eastergate Geocellular soakaway			
Date 22.2.18 File Rear geocell.SRCX		Designed by RTFC Checked by			
Micro Drainage		Source Control 2016.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	10.962	0.562	0.2	2.7	0 K
60 min Winter	11.075	0.675	0.2	3.2	0 K
120 min Winter	11.140	0.740	0.2	3.5	0 K
180 min Winter	11.143	0.743	0.2	3.5	0 K
240 min Winter	11.132	0.732	0.2	3.5	0 K
360 min Winter	11.092	0.692	0.2	3.3	0 K
480 min Winter	11.047	0.647	0.2	3.1	0 K
600 min Winter	11.003	0.603	0.2	2.9	0 K
720 min Winter	10.960	0.560	0.2	2.7	0 K
960 min Winter	10.883	0.483	0.2	2.3	0 K
1440 min Winter	10.757	0.357	0.2	1.7	0 K
2160 min Winter	10.620	0.220	0.1	1.0	0 K
2880 min Winter	10.526	0.126	0.1	0.6	0 K
4320 min Winter	10.447	0.047	0.1	0.2	0 K
5760 min Winter	10.437	0.037	0.1	0.2	0 K
7200 min Winter	10.431	0.031	0.1	0.1	0 K
8640 min Winter	10.427	0.027	0.1	0.1	0 K
10080 min Winter	10.424	0.024	0.1	0.1	0 K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	77.804	0.0	32		
60 min Winter	49.937	0.0	60		
120 min Winter	30.956	0.0	114		
180 min Winter	23.058	0.0	144		
240 min Winter	18.577	0.0	182		
360 min Winter	13.656	0.0	260		
480 min Winter	10.974	0.0	334		
600 min Winter	9.254	0.0	406		
720 min Winter	8.046	0.0	478		
960 min Winter	6.447	0.0	616		
1440 min Winter	4.709	0.0	880		
2160 min Winter	3.432	0.0	1256		
2880 min Winter	2.739	0.0	1612		
4320 min Winter	1.989	0.0	2188		
5760 min Winter	1.583	0.0	2896		
7200 min Winter	1.325	0.0	3648		
8640 min Winter	1.147	0.0	4368		
10080 min Winter	1.015	0.0	5136		
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Willow Cottage Herne Lane Rustington BN16 3EE	Como, Barnham Road Eastergate Geocellular soakaway																																	
Date 22.2.18 File Rear geocell.SRCX	Designed by RTFC Checked by																																	
Micro Drainage																																		
<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.000</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.350</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+30</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.009 <table> <thead> <tr> <th colspan="2">Time (mins)</th> <th rowspan="2">Area (ha)</th> </tr> <tr> <th>From:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.009</td> </tr> </tbody> </table>			Rainfall Model	FSR	Winter Storms	Yes	Return Period (years)	100	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	19.000	Shortest Storm (mins)	15	Ratio R	0.350	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+30	Time (mins)		Area (ha)	From:	To:	0	4	0.009
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Willow Cottage Herne Lane Rustington BN16 3EE	Como, Barnham Road Eastergate Geocellular soakaway	
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Micro Drainage Source Control 2016.1		

Model Details

Storage is Online Cover Level (m) 11.600

Cellular Storage Structure

Invert Level (m) 10.400

Infiltration Coefficient Base (m/hr) 0.11221

Infiltration Coefficient Side (m/hr) 0.11221

Safety Factor 1.5

Porosity 0.95

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	5.0	5.0	0.900	0.0	12.2
0.800	5.0	12.2			

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