Appendix C: Version

Classification utilises the following:

- CLP Regulations - Regulation 1272/2008/EC of 16 December 2008
- 1st ATP - Regulation 790/2009/EC of 10 August 2009
- 2nd ATP - Regulation 286/2011/EC of 10 March 2011
- 3rd ATP - Regulation 618/2012/EU of 10 July 2012
- 4th ATP - Regulation 487/2013/EU of 8 May 2013
- Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
- 5th ATP - Regulation 944/2013/EU of 2 October 2013
- 6th ATP - Regulation 605/2014/EU of 5 June 2014
- WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
- Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
- WM3 - Waste Classification - May 2015
- 7th ATP - Regulation 2015/1221/EU of 24 July 2015
- POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

HazWasteOnline Engine: WM3 1st Edition, May 2015
HazWasteOnline Engine Version: 2015.253.2954.5948 (10 Sep 2015)
HazWasteOnline Database: 2015.247.2953.5943 (04 Sep 2015)

Appendix F: Environment Agency Consultation

creating a better place

Environment Agency

Mr Nick Yeo
4 Swallow Court
Sampford Peverell
Tiverton
EX16 7EJ

Our ref: HA/2019/121686/02-L01
Your ref: ENVPAC/1/SSD/00106

Date: 28 October 2019

Dear Mr Yeo

DETAILED ADVICE: REVIEW OF GROUND CONTAMINATION RISK ASSESSMENT AND SUITABILITY OF INFILTRATION HMRC DURRINGTON, BARRINGTON ROAD, WEST WORTHING, WORTHING, WEST SUSSEX, BN12 4EA

Thank you for accepting our offer to provide detailed planning advice. We have reviewed the following documents:

Combined Geotechnical and Ground Contamination Risk Assessment (Ashdown Site Investigation Sept 2015).

We are providing this advice under Agreement No. ENVPAC/1/SSD/00106
Please note we have taken (4.5 hours) to review and provide our advice on these documents which is as we estimated in our Programme of Works The total will now be £450 plus VAT which is payable on receipt of our invoice.

This development is located on River Terrace Deposits overlying the Chalk principal aquifer. The site does not lie within a source protection zone but groundwater is likely to be relatively shallow and is sensitive to contamination.

Environment Agency Advice
We have reviewed the submitted information in relation to the proposed development and have the following detailed comments

The site investigation identified arsenic, metals and PAH contamination in the Made Ground. A number of potential sources of contamination are identified within the site

investigation including five above ground tanks, an electrical substation, liquid fuel boilers and a chemical storage area and the report highlights that there remains the potential for localise contamination to be present beneath the facilities maintenance area and electricity substations.

Section 6.3 highlights that some areas of the site are currently not accessible due to the presence of existing buildings and infrastructure, we support this and that further site investigation works may be required.

The remedial works proposed in this report mitigate against the risks to human health and comprise a cover system, however the risks to controlled waters are not addressed. Due to the sensitivity of groundwater in this location and the contamination identified we would like to see additional site investigation in the areas that are presently inaccessible and remedial measures to address the risk posed by the contamination identified in the Made Ground and we would recommend that conditions are included in any planning permission granted to address these risks.
In terms of infiltration of surface water, in the sites current state, we would not consider that infiltration of surface water is suitable given the potential for it to mobilise contaminants and present an increased risk of contamination to the underlying chalk principal aquifer. Additional site investigation, remedial works to remove the contaminated soils and robust validation testing would be required for us to consider the use of surface water infiltration from sustainable drainage systems (SuDS) and demonstrate the risks to controlled waters have been removed.

This would be required to ensure that the development does not contribute to, is not put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants. This is in line with paragraph 170 of the National Planning Policy Framework.

I hope the above advice is helpful. If there is any further work you anticipate needing our detailed advice on in relation to this project please be aware that as of the 1 April our charge has increased to £100 per person/hour plus VAT.

Yours sincerely

Mrs Sophie Brown
Sustainable Places Planning Advisor

Direct dial 02030 257250
Direct e-mail planningSSD@environment-agency.gov.uk

Disclaimer

Our opinion is based on the information available to us at the time of the enquiry. When the formal planning application is submitted, our position may change if there have been changes to environmental risk or evidence, and/or planning policy.

Appendix G: Southern Water Consultation

from Southern Water

Nick Yeo
RMA Environmental
RMA Environmental Ltd
4 Swallow Court
Sampford Peverell
Tiverton
Devon
EX16 7EJ

Your ref

Our ref
DS_CC_PDE-113019

Date
16 October 2019

Contact

Tel 0330 303 0119

Dear Mr Yeo,

Site: HMRC Durrington, Barrington Road, West Worthing, West Sussex, BN12 4EA.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

Following initial investigations, there is currently adequate capacity in the local sewerage network to accommodate a foul flow for the above development at/downstream of manhole reference TQ1102**7904** or TQ1102**7905**. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system.

Surface Water

There is currently inadequate capacity within the local surface network to accommodate a flow of **150 l/s** at manhole reference TQ1102**8952**. Please note, there are no surface water sewers with sufficient capacity in the vicinity of the development site. Surface water should be disposed of by alternative means such as discharging the surface water via soakaways if effective at this location or to any local drainage water courses, subject to all interested parties' approval.

Alternatively, the developer can discharge surface water flow no greater than existing levels if proven to be connected and it is ensured that there is no overall increase in flows into the surface water system. You will be required to provide a topographical site survey and/or a CCTV survey showing the existing connection points, pipe sizes, gradients and calculations confirming the proposed surface water flow will be no greater than the existing contributing flows.

Please note, as on 1st April 2018 we have moved to the "New Connections Services Charging Arrangements". We understand that this may cause uncertainty for customers, particularly where they may have already committed to a development based on previous charging arrangements. We have worked with our stakeholders and Water UK to agree a set of principles by which we will base our charges. Please read through our new charging arrangement documents available via the following link:

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing BN13 3NX Registered in England No. 2366670

https://beta.southernwater.co.uk/infrastructure-charges

Alternatively, new appointees and variations (NAVs), also known as ‘inset’ companies, can provide new connection services or take ownership of the new water and wastewater connection infrastructure provided for a new development. NAVs are appointed by Ofwat and replace the regional water company. It is for the developer to choose whether to use a NAV or the regional water company to supply services for new sites, according to certain legal criteria.

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal S106 connection application is required to be completed and approved by Southern Water Services. Please see the following link:

https://developerservices.southernwater.co.uk/ConnectiontoPublicSewer/ApplicationForm

Should you require any further information, please contact us at the above mentioned phone number or address shown in the footer.

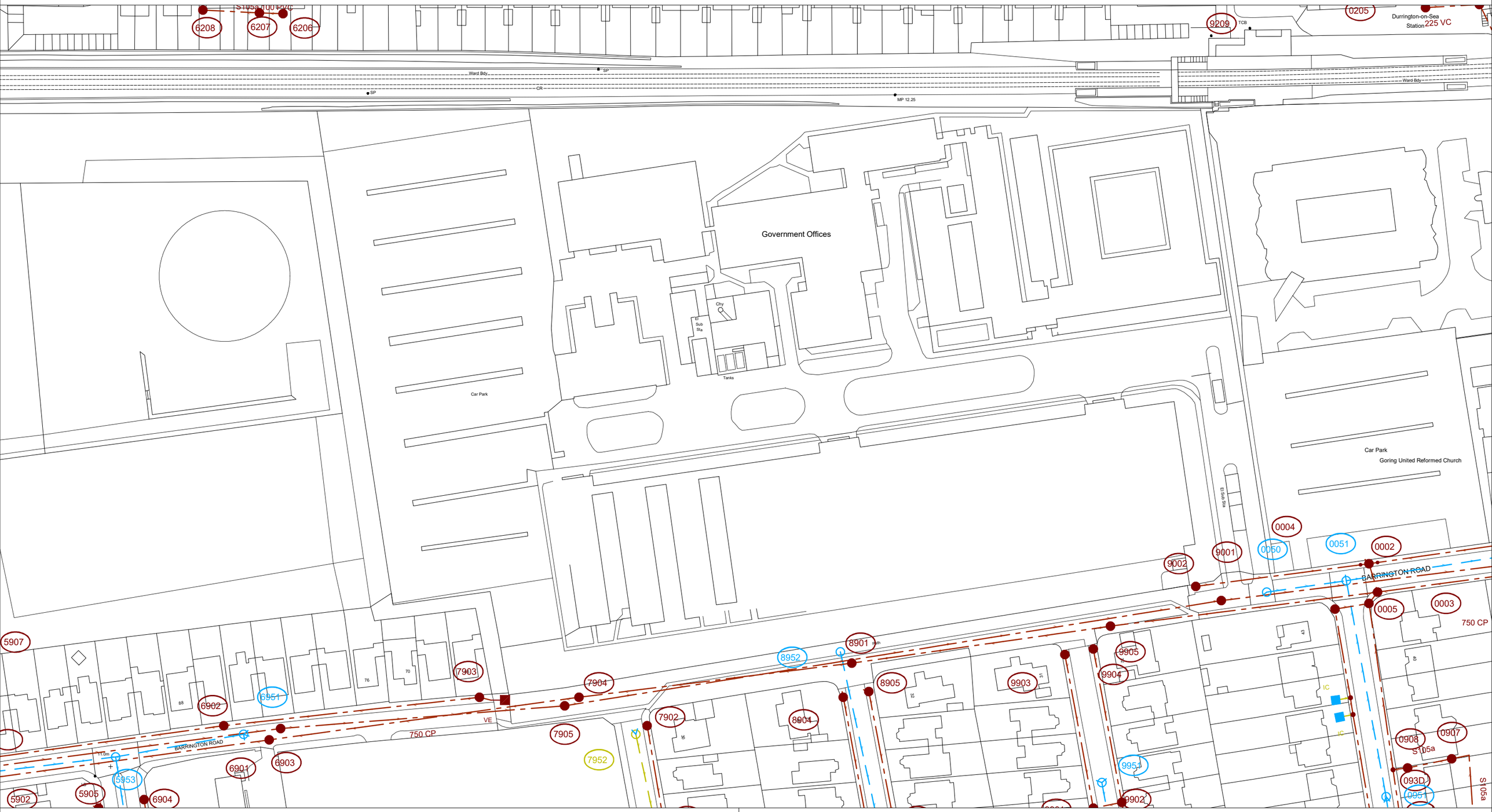
Yours sincerely,



Tim Peacock-Bjurström
Technical Delivery Lead
Business Channels

Please note: - The information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter.

SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

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Southern Water

O.S. REF: TQ1103SE

Scale: 1:1250

N

Printed By: Mercy

Date: 3-10-2019

Sewer Plot

Site Plan

WARNING: BAC pipes are constructed of Bonded Asbestos Cement

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

Requested By:

Appendix H: MicroDrainage Estimates

Appendix H1: Attenuation Basin No.1

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.538	0.538	44.9	621.0	O K
30 min Summer	9.622	0.622	49.5	728.5	Flood Risk
60 min Summer	9.702	0.702	53.9	831.6	Flood Risk
120 min Summer	9.755	0.755	56.8	902.1	Flood Risk
180 min Summer	9.774	0.774	57.9	927.2	Flood Risk
240 min Summer	9.783	0.783	58.4	940.2	Flood Risk
360 min Summer	9.787	0.787	58.6	945.4	Flood Risk
480 min Summer	9.781	0.781	58.3	937.2	Flood Risk
600 min Summer	9.772	0.772	57.8	925.7	Flood Risk
720 min Summer	9.764	0.764	57.3	913.9	Flood Risk
960 min Summer	9.729	0.729	55.4	868.3	Flood Risk
1440 min Summer	9.655	0.655	51.3	770.7	Flood Risk
2160 min Summer	9.545	0.545	45.3	630.8	O K
2880 min Summer	9.457	0.457	40.4	520.8	O K
4320 min Summer	9.339	0.339	33.9	379.0	O K
5760 min Summer	9.265	0.265	29.7	292.3	O K
7200 min Summer	9.226	0.226	25.4	247.7	O K
8640 min Summer	9.201	0.201	22.6	219.6	O K
10080 min Summer	9.182	0.182	20.4	197.8	O K
15 min Winter	9.598	0.598	48.2	697.2	O K
30 min Winter	9.692	0.692	53.4	819.6	Flood Risk
60 min Winter	9.782	0.782	58.3	938.6	Flood Risk
120 min Winter	9.846	0.846	61.8	1025.2	Flood Risk
180 min Winter	9.861	0.861	62.6	1046.0	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	22
30 min Summer	105.748	35
60 min Summer	63.747	64
120 min Summer	38.428	116
180 min Summer	28.580	144
240 min Summer	23.165	176
360 min Summer	17.229	246
480 min Summer	13.964	314
600 min Summer	11.865	384
720 min Summer	10.386	454
960 min Summer	8.264	588
1440 min Summer	5.989	844
2160 min Summer	4.340	1216
2880 min Summer	3.454	1588
4320 min Summer	2.533	2296
5760 min Summer	2.033	2992
7200 min Summer	1.715	3744
8640 min Summer	1.492	4416
10080 min Summer	1.326	5144
15 min Winter	175.422	21
30 min Winter	105.748	35
60 min Winter	63.747	62
120 min Winter	38.428	118
180 min Winter	28.580	150

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m^3)	Status
240 min Winter	9.869	0.869	63.1	1056.5	Flood Risk
360 min Winter	9.863	0.863	62.8	1049.0	Flood Risk
480 min Winter	9.846	0.846	61.8	1025.9	Flood Risk
600 min Winter	9.827	0.827	60.8	999.9	Flood Risk
720 min Winter	9.808	0.808	59.8	973.9	Flood Risk
960 min Winter	9.753	0.753	56.7	899.2	Flood Risk
1440 min Winter	9.645	0.645	50.8	758.2	Flood Risk
2160 min Winter	9.504	0.504	43.0	578.4	O K
2880 min Winter	9.395	0.395	37.1	445.8	O K
4320 min Winter	9.266	0.266	29.9	293.4	O K
5760 min Winter	9.210	0.210	23.6	230.0	O K
7200 min Winter	9.175	0.175	19.7	190.6	O K
8640 min Winter	9.153	0.153	17.2	166.1	O K
10080 min Winter	9.137	0.137	15.4	147.8	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	23.165	186
360 min Winter	17.229	264
480 min Winter	13.964	340
600 min Winter	11.865	416
720 min Winter	10.386	488
960 min Winter	8.264	628
1440 min Winter	5.989	894
2160 min Winter	4.340	1264
2880 min Winter	3.454	1620
4320 min Winter	2.533	2292
5760 min Winter	2.033	2944
7200 min Winter	1.715	3744
8640 min Winter	1.492	4488
10080 min Winter	1.326	5152

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 1.988

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.000	4-8	0.988

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Model Details

Storage is Online Cover Level (m) 9.900

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1055.2	0.900	1389.0

Depth/Flow Relationship Outflow Control

Invert Level (m) 9.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.267	30.0000	0.900	64.8000

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Appendix H2: Attenuation Basin No.2

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.981	0.281	1.1	40.6	O K
30 min Summer	10.027	0.327	1.2	48.4	Flood Risk
60 min Summer	10.076	0.376	1.3	57.0	Flood Risk
120 min Summer	10.125	0.425	1.4	65.8	Flood Risk
180 min Summer	10.151	0.451	1.4	70.5	Flood Risk
240 min Summer	10.165	0.465	1.5	73.2	Flood Risk
360 min Summer	10.178	0.478	1.5	75.7	Flood Risk
480 min Summer	10.183	0.483	1.5	76.7	Flood Risk
600 min Summer	10.186	0.486	1.5	77.2	Flood Risk
720 min Summer	10.186	0.486	1.5	77.3	Flood Risk
960 min Summer	10.175	0.475	1.5	75.2	Flood Risk
1440 min Summer	10.150	0.450	1.4	70.5	Flood Risk
2160 min Summer	10.114	0.414	1.4	63.7	Flood Risk
2880 min Summer	10.081	0.381	1.3	57.8	Flood Risk
4320 min Summer	10.029	0.329	1.2	48.8	Flood Risk
5760 min Summer	9.986	0.286	1.2	41.5	O K
7200 min Summer	9.949	0.249	1.1	35.6	O K
8640 min Summer	9.918	0.218	1.0	30.6	O K
10080 min Summer	9.891	0.191	0.9	26.5	O K
15 min Winter	10.010	0.310	1.2	45.6	Flood Risk
30 min Winter	10.061	0.361	1.3	54.3	Flood Risk
60 min Winter	10.116	0.416	1.4	64.1	Flood Risk
120 min Winter	10.171	0.471	1.5	74.3	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	33
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	356
480 min Summer	13.964	408
600 min Summer	11.865	472
720 min Summer	10.386	534
960 min Summer	8.264	666
1440 min Summer	5.989	940
2160 min Summer	4.340	1360
2880 min Summer	3.454	1756
4320 min Summer	2.533	2548
5760 min Summer	2.033	3288
7200 min Summer	1.715	4032
8640 min Summer	1.492	4760
10080 min Summer	1.326	5544
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62
120 min Winter	38.428	120

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
180 min Winter	10.200	0.500	1.5	79.9	Flood Risk
240 min Winter	10.218	0.518	1.6	83.3	Flood Risk
360 min Winter	10.236	0.536	1.6	86.9	Flood Risk
480 min Winter	10.242	0.542	1.6	88.1	Flood Risk
600 min Winter	10.242	0.542	1.6	88.2	Flood Risk
720 min Winter	10.243	0.543	1.6	88.3	Flood Risk
960 min Winter	10.229	0.529	1.6	85.5	Flood Risk
1440 min Winter	10.195	0.495	1.5	78.9	Flood Risk
2160 min Winter	10.142	0.442	1.4	69.0	Flood Risk
2880 min Winter	10.095	0.395	1.4	60.3	Flood Risk
4320 min Winter	10.021	0.321	1.2	47.5	Flood Risk
5760 min Winter	9.963	0.263	1.1	37.7	O K
7200 min Winter	9.915	0.215	1.0	30.2	O K
8640 min Winter	9.876	0.176	0.9	24.3	O K
10080 min Winter	9.840	0.140	0.8	18.9	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	346
480 min Winter	13.964	452
600 min Winter	11.865	494
720 min Winter	10.386	564
960 min Winter	8.264	720
1440 min Winter	5.989	1024
2160 min Winter	4.340	1452
2880 min Winter	3.454	1876
4320 min Winter	2.533	2680
5760 min Winter	2.033	3456
7200 min Winter	1.715	4184
8640 min Winter	1.492	5008
10080 min Winter	1.326	5752

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.126

Time (mins)	Area (ha)
0-4	0.126

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Model Details

Storage is Online Cover Level (m) 10.300

Tank or Pond Structure

Invert Level (m) 9.700

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	125.8	0.600	207.5

Hydro-Brake® Outflow Control

Design Head (m) 0.600 Hydro-Brake® Type Md1 Invert Level (m) 9.700
Design Flow (l/s) 1.7 Diameter (mm) 44

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	2.4	3.000	3.7	7.000	5.7
0.200	1.0	1.400	2.6	3.500	4.0	7.500	5.9
0.300	1.2	1.600	2.7	4.000	4.3	8.000	6.1
0.400	1.4	1.800	2.9	4.500	4.6	8.500	6.3
0.500	1.5	2.000	3.0	5.000	4.8	9.000	6.5
0.600	1.7	2.200	3.2	5.500	5.1	9.500	6.6
0.800	1.9	2.400	3.3	6.000	5.3		
1.000	2.2	2.600	3.5	6.500	5.5		

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Appendix H3: Geocellular Storage No.1

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 809 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	8.344	0.344	0.0	2.1	2.1	153.4	O K
30 min Summer	8.412	0.412	0.0	2.6	2.6	183.8	O K
60 min Summer	8.490	0.490	0.0	3.0	3.0	218.8	O K
120 min Summer	8.576	0.576	0.0	3.6	3.6	257.4	O K
180 min Summer	8.628	0.628	0.0	3.9	3.9	280.2	O K
240 min Summer	8.662	0.662	0.0	4.1	4.1	295.5	O K
360 min Summer	8.703	0.703	0.0	4.4	4.4	314.0	Flood Risk
480 min Summer	8.724	0.724	0.0	4.5	4.5	323.4	Flood Risk
600 min Summer	8.738	0.738	0.0	4.6	4.6	329.4	Flood Risk
720 min Summer	8.749	0.749	0.0	4.6	4.6	334.4	Flood Risk
960 min Summer	8.751	0.751	0.0	4.7	4.7	335.2	Flood Risk
1440 min Summer	8.746	0.746	0.0	4.6	4.6	332.9	Flood Risk
2160 min Summer	8.725	0.725	0.0	4.5	4.5	323.7	Flood Risk
2880 min Summer	8.699	0.699	0.0	4.3	4.3	312.0	O K
4320 min Summer	8.653	0.653	0.0	4.1	4.1	291.7	O K
5760 min Summer	8.609	0.609	0.0	3.8	3.8	272.1	O K
7200 min Summer	8.571	0.571	0.0	3.5	3.5	254.7	O K
8640 min Summer	8.536	0.536	0.0	3.3	3.3	239.5	O K
10080 min Summer	8.507	0.507	0.0	3.1	3.1	226.4	O K
15 min Winter	8.385	0.385	0.0	2.4	2.4	171.8	O K
30 min Winter	8.461	0.461	0.0	2.9	2.9	205.9	O K
60 min Winter	8.549	0.549	0.0	3.4	3.4	245.2	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	34
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	476
600 min Summer	11.865	518
720 min Summer	10.386	578
960 min Summer	8.264	702
1440 min Summer	5.989	968
2160 min Summer	4.340	1384
2880 min Summer	3.454	1788
4320 min Summer	2.533	2592
5760 min Summer	2.033	3352
7200 min Summer	1.715	4112
8640 min Summer	1.492	4920
10080 min Summer	1.326	5648
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	8.646	0.646	0.0	4.0	4.0	288.6	O K
180 min Winter	8.704	0.704	0.0	4.4	4.4	314.4	Flood Risk
240 min Winter	8.743	0.743	0.0	4.6	4.6	331.9	Flood Risk
360 min Winter	8.792	0.792	0.0	4.9	4.9	353.5	Flood Risk
480 min Winter	8.818	0.818	0.0	5.1	5.1	365.2	Flood Risk
600 min Winter	8.832	0.832	0.0	5.2	5.2	371.4	Flood Risk
720 min Winter	8.840	0.840	0.0	5.2	5.2	375.0	Flood Risk
960 min Winter	8.839	0.839	0.0	5.2	5.2	374.7	Flood Risk
1440 min Winter	8.823	0.823	0.0	5.1	5.1	367.3	Flood Risk
2160 min Winter	8.783	0.783	0.0	4.9	4.9	349.6	Flood Risk
2880 min Winter	8.740	0.740	0.0	4.6	4.6	330.4	Flood Risk
4320 min Winter	8.669	0.669	0.0	4.1	4.1	298.6	O K
5760 min Winter	8.607	0.607	0.0	3.8	3.8	271.0	O K
7200 min Winter	8.555	0.555	0.0	3.4	3.4	247.8	O K
8640 min Winter	8.511	0.511	0.0	3.2	3.2	228.2	O K
10080 min Winter	8.474	0.474	0.0	2.9	2.9	211.6	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	180
240 min Winter	23.165	236
360 min Winter	17.229	350
480 min Winter	13.964	460
600 min Winter	11.865	562
720 min Winter	10.386	592
960 min Winter	8.264	734
1440 min Winter	5.989	1040
2160 min Winter	4.340	1488
2880 min Winter	3.454	1904
4320 min Winter	2.533	2728
5760 min Winter	2.033	3528
7200 min Winter	1.715	4320
8640 min Winter	1.492	5096
10080 min Winter	1.326	5848

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.470

Time (mins)	Area (ha)
0-4	0.470

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Model Details

Storage is Online Cover Level (m) 9.000

Cellular Storage Structure

Invert Level (m) 8.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	470.0	0.0	1.000	470.0	0.0

Pump Outflow Control

Invert Level (m) 8.000

Depth (m)	Flow (l/s)
1.000	6.2000

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Appendix H4: Geocellular Storage No.2

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 574 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.351	0.151	0.0	2.6	2.6	85.9	Flood Risk
30 min Summer	9.380	0.180	0.0	2.6	2.6	102.5	Flood Risk
60 min Summer	9.413	0.213	0.0	2.6	2.6	121.3	Flood Risk
120 min Summer	9.448	0.248	0.0	2.7	2.7	141.3	Flood Risk
180 min Summer	9.467	0.267	0.0	2.8	2.8	152.3	Flood Risk
240 min Summer	9.479	0.279	0.0	2.9	2.9	159.1	Flood Risk
360 min Summer	9.491	0.291	0.0	2.9	2.9	166.1	Flood Risk
480 min Summer	9.497	0.297	0.0	3.0	3.0	169.1	Flood Risk
600 min Summer	9.500	0.300	0.0	3.0	3.0	171.0	Flood Risk
720 min Summer	9.502	0.302	0.0	3.0	3.0	172.1	Flood Risk
960 min Summer	9.497	0.297	0.0	3.0	3.0	169.2	Flood Risk
1440 min Summer	9.483	0.283	0.0	2.9	2.9	161.2	Flood Risk
2160 min Summer	9.459	0.259	0.0	2.8	2.8	147.7	Flood Risk
2880 min Summer	9.436	0.236	0.0	2.7	2.7	134.4	Flood Risk
4320 min Summer	9.397	0.197	0.0	2.6	2.6	112.1	Flood Risk
5760 min Summer	9.359	0.159	0.0	2.6	2.6	90.5	Flood Risk
7200 min Summer	9.331	0.131	0.0	2.6	2.6	74.6	Flood Risk
8640 min Summer	9.314	0.114	0.0	2.5	2.5	65.2	Flood Risk
10080 min Summer	9.303	0.103	0.0	2.4	2.4	58.4	Flood Risk
15 min Winter	9.369	0.169	0.0	2.6	2.6	96.3	Flood Risk
30 min Winter	9.402	0.202	0.0	2.6	2.6	115.1	Flood Risk
60 min Winter	9.439	0.239	0.0	2.7	2.7	136.3	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	33
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	420
600 min Summer	11.865	482
720 min Summer	10.386	544
960 min Summer	8.264	676
1440 min Summer	5.989	952
2160 min Summer	4.340	1364
2880 min Summer	3.454	1760
4320 min Summer	2.533	2552
5760 min Summer	2.033	3280
7200 min Summer	1.715	3896
8640 min Summer	1.492	4584
10080 min Summer	1.326	5336
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	9.479	0.279	0.0	2.9	2.9	158.9	Flood Risk
180 min Winter	9.501	0.301	0.0	3.0	3.0	171.6	Flood Risk
240 min Winter	9.515	0.315	0.0	3.1	3.1	179.7	Flood Risk
360 min Winter	9.531	0.331	0.0	3.1	3.1	188.8	Flood Risk
480 min Winter	9.538	0.338	0.0	3.2	3.2	192.6	Flood Risk
600 min Winter	9.540	0.340	0.0	3.2	3.2	193.6	Flood Risk
720 min Winter	9.541	0.341	0.0	3.2	3.2	194.3	Flood Risk
960 min Winter	9.533	0.333	0.0	3.1	3.1	189.9	Flood Risk
1440 min Winter	9.512	0.312	0.0	3.0	3.0	177.7	Flood Risk
2160 min Winter	9.476	0.276	0.0	2.9	2.9	157.5	Flood Risk
2880 min Winter	9.442	0.242	0.0	2.7	2.7	138.0	Flood Risk
4320 min Winter	9.381	0.181	0.0	2.6	2.6	103.1	Flood Risk
5760 min Winter	9.328	0.128	0.0	2.6	2.6	73.1	Flood Risk
7200 min Winter	9.305	0.105	0.0	2.4	2.4	59.8	Flood Risk
8640 min Winter	9.291	0.091	0.0	2.2	2.2	51.9	O K
10080 min Winter	9.282	0.082	0.0	2.0	2.0	46.8	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	348
480 min Winter	13.964	456
600 min Winter	11.865	548
720 min Winter	10.386	572
960 min Winter	8.264	724
1440 min Winter	5.989	1026
2160 min Winter	4.340	1472
2880 min Winter	3.454	1900
4320 min Winter	2.533	2720
5760 min Winter	2.033	3288
7200 min Winter	1.715	3960
8640 min Winter	1.492	4656
10080 min Winter	1.326	5344

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.266

Time (mins)	Area (ha)
0-4	0.266

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Model Details

Storage is Online Cover Level (m) 9.600

Cellular Storage Structure

Invert Level (m) 9.200 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	600.0	0.0	0.400	600.0	0.0

Hydro-Brake® Outflow Control

Design Head (m) 0.400 Hydro-Brake® Type Md1 Invert Level (m) 9.200
Design Flow (l/s) 3.5 Diameter (mm) 70

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.4	1.200	6.0	3.000	9.4	7.000	14.4
0.200	2.5	1.400	6.5	3.500	10.2	7.500	14.9
0.300	3.0	1.600	6.9	4.000	10.9	8.000	15.4
0.400	3.4	1.800	7.3	4.500	11.6	8.500	15.9
0.500	3.9	2.000	7.7	5.000	12.2	9.000	16.4
0.600	4.2	2.200	8.1	5.500	12.8	9.500	16.8
0.800	4.9	2.400	8.5	6.000	13.4		
1.000	5.5	2.600	8.8	6.500	13.9		

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Appendix H5: Geocellular Storage No.3

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 628 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.253	0.253	0.0	1.7	1.7	72.2	O K
30 min Summer	9.302	0.302	0.0	1.9	1.9	86.2	Flood Risk
60 min Summer	9.357	0.357	0.0	2.0	2.0	101.9	Flood Risk
120 min Summer	9.416	0.416	0.0	2.2	2.2	118.5	Flood Risk
180 min Summer	9.448	0.448	0.0	2.3	2.3	127.7	Flood Risk
240 min Summer	9.468	0.468	0.0	2.3	2.3	133.5	Flood Risk
360 min Summer	9.490	0.490	0.0	2.4	2.4	139.5	Flood Risk
480 min Summer	9.498	0.498	0.0	2.4	2.4	141.9	Flood Risk
600 min Summer	9.503	0.503	0.0	2.4	2.4	143.4	Flood Risk
720 min Summer	9.506	0.506	0.0	2.4	2.4	144.2	Flood Risk
960 min Summer	9.497	0.497	0.0	2.4	2.4	141.6	Flood Risk
1440 min Summer	9.474	0.474	0.0	2.3	2.3	135.1	Flood Risk
2160 min Summer	9.437	0.437	0.0	2.2	2.2	124.7	Flood Risk
2880 min Summer	9.403	0.403	0.0	2.1	2.1	114.9	Flood Risk
4320 min Summer	9.350	0.350	0.0	2.0	2.0	99.7	Flood Risk
5760 min Summer	9.305	0.305	0.0	1.9	1.9	87.0	Flood Risk
7200 min Summer	9.267	0.267	0.0	1.7	1.7	76.2	O K
8640 min Summer	9.235	0.235	0.0	1.6	1.6	67.0	O K
10080 min Summer	9.207	0.207	0.0	1.5	1.5	58.9	O K
15 min Winter	9.284	0.284	0.0	1.8	1.8	80.9	O K
30 min Winter	9.339	0.339	0.0	2.0	2.0	96.7	Flood Risk
60 min Winter	9.402	0.402	0.0	2.1	2.1	114.4	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	34
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	438
600 min Summer	11.865	494
720 min Summer	10.386	558
960 min Summer	8.264	684
1440 min Summer	5.989	964
2160 min Summer	4.340	1368
2880 min Summer	3.454	1784
4320 min Summer	2.533	2592
5760 min Summer	2.033	3344
7200 min Summer	1.715	4104
8640 min Summer	1.492	4848
10080 min Summer	1.326	5640
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	9.468	0.468	0.0	2.3	2.3	133.5	Flood Risk
180 min Winter	9.506	0.506	0.0	2.4	2.4	144.2	Flood Risk
240 min Winter	9.531	0.531	0.0	2.5	2.5	151.2	Flood Risk
360 min Winter	9.558	0.558	0.0	2.5	2.5	159.1	Flood Risk
480 min Winter	9.571	0.571	0.0	2.5	2.5	162.6	Flood Risk
600 min Winter	9.575	0.575	0.0	2.6	2.6	163.8	Flood Risk
720 min Winter	9.576	0.576	0.0	2.6	2.6	164.2	Flood Risk
960 min Winter	9.564	0.564	0.0	2.5	2.5	160.8	Flood Risk
1440 min Winter	9.531	0.531	0.0	2.5	2.5	151.5	Flood Risk
2160 min Winter	9.478	0.478	0.0	2.3	2.3	136.2	Flood Risk
2880 min Winter	9.428	0.428	0.0	2.2	2.2	122.0	Flood Risk
4320 min Winter	9.351	0.351	0.0	2.0	2.0	100.0	Flood Risk
5760 min Winter	9.289	0.289	0.0	1.8	1.8	82.4	O K
7200 min Winter	9.239	0.239	0.0	1.6	1.6	68.1	O K
8640 min Winter	9.196	0.196	0.0	1.5	1.5	55.9	O K
10080 min Winter	9.153	0.153	0.0	1.4	1.4	43.6	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	348
480 min Winter	13.964	458
600 min Winter	11.865	558
720 min Winter	10.386	580
960 min Winter	8.264	732
1440 min Winter	5.989	1038
2160 min Winter	4.340	1488
2880 min Winter	3.454	1904
4320 min Winter	2.533	2724
5760 min Winter	2.033	3520
7200 min Winter	1.715	4320
8640 min Winter	1.492	5104
10080 min Winter	1.326	5944

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.223

Time (mins)	Area (ha)
0-4	0.223

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Model Details

Storage is Online Cover Level (m) 9.600

Cellular Storage Structure

Invert Level (m) 9.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	300.0	0.0	0.600	300.0	0.0

Hydro-Brake® Outflow Control

Design Head (m) 0.600 Hydro-Brake® Type Md1 Invert Level (m) 9.000
Design Flow (l/s) 2.7 Diameter (mm) 55

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.4	1.200	3.7	3.000	5.8	7.000	8.9
0.200	1.5	1.400	4.0	3.500	6.3	7.500	9.2
0.300	1.8	1.600	4.3	4.000	6.7	8.000	9.5
0.400	2.1	1.800	4.5	4.500	7.1	8.500	9.8
0.500	2.4	2.000	4.8	5.000	7.5	9.000	10.1
0.600	2.6	2.200	5.0	5.500	7.9	9.500	10.4
0.800	3.0	2.400	5.2	6.000	8.2		
1.000	3.4	2.600	5.4	6.500	8.6		

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Appendix H6: Geocellular Storage No.4

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 615 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.261	0.261	0.0	2.4	2.4	99.0	O K
30 min Summer	9.311	0.311	0.0	2.6	2.6	118.1	Flood Risk
60 min Summer	9.367	0.367	0.0	2.9	2.9	139.6	Flood Risk
120 min Summer	9.427	0.427	0.0	3.1	3.1	162.2	Flood Risk
180 min Summer	9.460	0.460	0.0	3.2	3.2	174.7	Flood Risk
240 min Summer	9.480	0.480	0.0	3.3	3.3	182.4	Flood Risk
360 min Summer	9.501	0.501	0.0	3.3	3.3	190.3	Flood Risk
480 min Summer	9.509	0.509	0.0	3.4	3.4	193.4	Flood Risk
600 min Summer	9.514	0.514	0.0	3.4	3.4	195.4	Flood Risk
720 min Summer	9.517	0.517	0.0	3.4	3.4	196.4	Flood Risk
960 min Summer	9.507	0.507	0.0	3.3	3.3	192.7	Flood Risk
1440 min Summer	9.483	0.483	0.0	3.3	3.3	183.4	Flood Risk
2160 min Summer	9.444	0.444	0.0	3.1	3.1	168.7	Flood Risk
2880 min Summer	9.407	0.407	0.0	3.0	3.0	154.8	Flood Risk
4320 min Summer	9.351	0.351	0.0	2.8	2.8	133.3	Flood Risk
5760 min Summer	9.304	0.304	0.0	2.6	2.6	115.3	Flood Risk
7200 min Summer	9.263	0.263	0.0	2.4	2.4	100.1	O K
8640 min Summer	9.229	0.229	0.0	2.3	2.3	86.9	O K
10080 min Summer	9.197	0.197	0.0	2.2	2.2	74.9	O K
15 min Winter	9.292	0.292	0.0	2.5	2.5	111.0	O K
30 min Winter	9.349	0.349	0.0	2.8	2.8	132.6	Flood Risk
60 min Winter	9.413	0.413	0.0	3.0	3.0	156.9	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	34
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	428
600 min Summer	11.865	488
720 min Summer	10.386	552
960 min Summer	8.264	682
1440 min Summer	5.989	954
2160 min Summer	4.340	1364
2880 min Summer	3.454	1764
4320 min Summer	2.533	2552
5760 min Summer	2.033	3344
7200 min Summer	1.715	4104
8640 min Summer	1.492	4840
10080 min Summer	1.326	5552
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	9.481	0.481	0.0	3.3	3.3	182.7	Flood Risk
180 min Winter	9.519	0.519	0.0	3.4	3.4	197.3	Flood Risk
240 min Winter	9.544	0.544	0.0	3.5	3.5	206.7	Flood Risk
360 min Winter	9.571	0.571	0.0	3.6	3.6	217.1	Flood Risk
480 min Winter	9.583	0.583	0.0	3.6	3.6	221.5	Flood Risk
600 min Winter	9.586	0.586	0.0	3.6	3.6	222.7	Flood Risk
720 min Winter	9.588	0.588	0.0	3.6	3.6	223.4	Flood Risk
960 min Winter	9.575	0.575	0.0	3.6	3.6	218.4	Flood Risk
1440 min Winter	9.539	0.539	0.0	3.5	3.5	205.0	Flood Risk
2160 min Winter	9.482	0.482	0.0	3.3	3.3	183.3	Flood Risk
2880 min Winter	9.430	0.430	0.0	3.1	3.1	163.3	Flood Risk
4320 min Winter	9.348	0.348	0.0	2.8	2.8	132.3	Flood Risk
5760 min Winter	9.283	0.283	0.0	2.5	2.5	107.4	O K
7200 min Winter	9.228	0.228	0.0	2.2	2.2	86.6	O K
8640 min Winter	9.173	0.173	0.0	2.2	2.2	65.7	O K
10080 min Winter	9.119	0.119	0.0	2.2	2.2	45.4	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	348
480 min Winter	13.964	456
600 min Winter	11.865	554
720 min Winter	10.386	576
960 min Winter	8.264	728
1440 min Winter	5.989	1036
2160 min Winter	4.340	1472
2880 min Winter	3.454	1904
4320 min Winter	2.533	2724
5760 min Winter	2.033	3520
7200 min Winter	1.715	4320
8640 min Winter	1.492	5104
10080 min Winter	1.326	5544

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.306

Time (mins)	Area (ha)
0-4	0.306

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Model Details

Storage is Online Cover Level (m) 9.600

Cellular Storage Structure

Invert Level (m) 9.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	400.0	0.0	0.600	400.0	0.0

Hydro-Brake® Outflow Control

Design Head (m) 0.600 Hydro-Brake® Type Md1 Invert Level (m) 9.000
Design Flow (l/s) 3.7 Diameter (mm) 65

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	5.2	3.000	8.1	7.000	12.4
0.200	2.1	1.400	5.6	3.500	8.8	7.500	12.9
0.300	2.6	1.600	5.9	4.000	9.4	8.000	13.3
0.400	3.0	1.800	6.3	4.500	10.0	8.500	13.7
0.500	3.3	2.000	6.7	5.000	10.5	9.000	14.1
0.600	3.6	2.200	7.0	5.500	11.0	9.500	14.5
0.800	4.2	2.400	7.3	6.000	11.5		
1.000	4.7	2.600	7.6	6.500	12.0		

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Appendix H7: Geocellular Storage No.5

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 701 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.675	0.275	0.0	2.1	2.1	78.3	O K
30 min Summer	9.728	0.328	0.0	2.1	2.1	93.6	O K
60 min Summer	9.789	0.389	0.0	2.1	2.1	110.8	O K
120 min Summer	9.853	0.453	0.0	2.1	2.1	129.1	O K
180 min Summer	9.889	0.489	0.0	2.2	2.2	139.4	O K
240 min Summer	9.912	0.512	0.0	2.3	2.3	145.9	Flood Risk
360 min Summer	9.937	0.537	0.0	2.3	2.3	153.1	Flood Risk
480 min Summer	9.947	0.547	0.0	2.4	2.4	155.8	Flood Risk
600 min Summer	9.951	0.551	0.0	2.4	2.4	157.1	Flood Risk
720 min Summer	9.954	0.554	0.0	2.4	2.4	157.8	Flood Risk
960 min Summer	9.943	0.543	0.0	2.4	2.4	154.6	Flood Risk
1440 min Summer	9.916	0.516	0.0	2.3	2.3	147.2	Flood Risk
2160 min Summer	9.875	0.475	0.0	2.2	2.2	135.3	O K
2880 min Summer	9.835	0.435	0.0	2.1	2.1	124.1	O K
4320 min Summer	9.772	0.372	0.0	2.1	2.1	105.9	O K
5760 min Summer	9.714	0.314	0.0	2.1	2.1	89.6	O K
7200 min Summer	9.659	0.259	0.0	2.1	2.1	73.7	O K
8640 min Summer	9.598	0.198	0.0	2.1	2.1	56.3	O K
10080 min Summer	9.549	0.149	0.0	2.1	2.1	42.4	O K
15 min Winter	9.708	0.308	0.0	2.1	2.1	87.8	O K
30 min Winter	9.768	0.368	0.0	2.1	2.1	105.0	O K
60 min Winter	9.836	0.436	0.0	2.1	2.1	124.4	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	34
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	468
600 min Summer	11.865	518
720 min Summer	10.386	578
960 min Summer	8.264	704
1440 min Summer	5.989	980
2160 min Summer	4.340	1388
2880 min Summer	3.454	1812
4320 min Summer	2.533	2596
5760 min Summer	2.033	3408
7200 min Summer	1.715	4176
8640 min Summer	1.492	4840
10080 min Summer	1.326	5352
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	9.910	0.510	0.0	2.3	2.3	145.3	Flood Risk
180 min Winter	9.952	0.552	0.0	2.4	2.4	157.3	Flood Risk
240 min Winter	9.979	0.579	0.0	2.4	2.4	165.1	Flood Risk
360 min Winter	10.012	0.612	0.0	2.5	2.5	174.3	Flood Risk
480 min Winter	10.027	0.627	0.0	2.5	2.5	178.6	Flood Risk
600 min Winter	10.032	0.632	0.0	2.5	2.5	180.2	Flood Risk
720 min Winter	10.032	0.632	0.0	2.5	2.5	180.3	Flood Risk
960 min Winter	10.018	0.618	0.0	2.5	2.5	176.2	Flood Risk
1440 min Winter	9.982	0.582	0.0	2.4	2.4	165.9	Flood Risk
2160 min Winter	9.922	0.522	0.0	2.3	2.3	148.8	Flood Risk
2880 min Winter	9.864	0.464	0.0	2.2	2.2	132.3	O K
4320 min Winter	9.769	0.369	0.0	2.1	2.1	105.1	O K
5760 min Winter	9.678	0.278	0.0	2.1	2.1	79.1	O K
7200 min Winter	9.562	0.162	0.0	2.1	2.1	46.1	O K
8640 min Winter	9.518	0.118	0.0	2.0	2.0	33.6	O K
10080 min Winter	9.502	0.102	0.0	1.8	1.8	29.2	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	350
480 min Winter	13.964	460
600 min Winter	11.865	566
720 min Winter	10.386	658
960 min Winter	8.264	744
1440 min Winter	5.989	1054
2160 min Winter	4.340	1512
2880 min Winter	3.454	1936
4320 min Winter	2.533	2808
5760 min Winter	2.033	3632
7200 min Winter	1.715	4176
8640 min Winter	1.492	4592
10080 min Winter	1.326	5248

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.242

Time (mins)	Area (ha)
0-4	0.242

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Model Details

Storage is Online Cover Level (m) 10.200

Cellular Storage Structure

Invert Level (m) 9.400 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	300.0	0.0	0.800	300.0	0.0

Hydro-Brake® Outflow Control

Design Head (m) 0.800 Hydro-Brake® Type Md4 Invert Level (m) 9.400
Design Flow (l/s) 2.9 Diameter (mm) 64

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	3.5	3.000	5.5	7.000	8.4
0.200	1.8	1.400	3.8	3.500	6.0	7.500	8.7
0.300	1.8	1.600	4.0	4.000	6.4	8.000	9.0
0.400	2.0	1.800	4.3	4.500	6.8	8.500	9.3
0.500	2.3	2.000	4.5	5.000	7.1	9.000	9.6
0.600	2.5	2.200	4.7	5.500	7.5	9.500	9.8
0.800	2.9	2.400	4.9	6.000	7.8		
1.000	3.2	2.600	5.1	6.500	8.1		

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Appendix H8: Geocellular Storage No.6

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 581 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.527	0.127	0.0	1.9	1.9	61.0	Flood Risk
30 min Summer	9.552	0.152	0.0	1.9	1.9	72.9	Flood Risk
60 min Summer	9.580	0.180	0.0	1.9	1.9	86.3	Flood Risk
120 min Summer	9.610	0.210	0.0	1.9	1.9	100.5	Flood Risk
180 min Summer	9.626	0.226	0.0	2.0	2.0	108.4	Flood Risk
240 min Summer	9.637	0.237	0.0	2.0	2.0	113.3	Flood Risk
360 min Summer	9.648	0.248	0.0	2.1	2.1	118.5	Flood Risk
480 min Summer	9.652	0.252	0.0	2.1	2.1	120.7	Flood Risk
600 min Summer	9.655	0.255	0.0	2.1	2.1	122.1	Flood Risk
720 min Summer	9.657	0.257	0.0	2.1	2.1	123.0	Flood Risk
960 min Summer	9.653	0.253	0.0	2.1	2.1	120.9	Flood Risk
1440 min Summer	9.641	0.241	0.0	2.0	2.0	115.4	Flood Risk
2160 min Summer	9.621	0.221	0.0	2.0	2.0	106.0	Flood Risk
2880 min Summer	9.602	0.202	0.0	1.9	1.9	96.6	Flood Risk
4320 min Summer	9.568	0.168	0.0	1.9	1.9	80.6	Flood Risk
5760 min Summer	9.536	0.136	0.0	1.9	1.9	65.3	Flood Risk
7200 min Summer	9.513	0.113	0.0	1.9	1.9	54.1	Flood Risk
8640 min Summer	9.499	0.099	0.0	1.8	1.8	47.5	Flood Risk
10080 min Summer	9.489	0.089	0.0	1.7	1.7	42.6	Flood Risk
15 min Winter	9.543	0.143	0.0	1.9	1.9	68.5	Flood Risk
30 min Winter	9.571	0.171	0.0	1.9	1.9	81.8	Flood Risk
60 min Winter	9.602	0.202	0.0	1.9	1.9	96.9	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	33
60 min Summer	63.747	64
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	242
360 min Summer	17.229	360
480 min Summer	13.964	428
600 min Summer	11.865	486
720 min Summer	10.386	550
960 min Summer	8.264	676
1440 min Summer	5.989	954
2160 min Summer	4.340	1364
2880 min Summer	3.454	1764
4320 min Summer	2.533	2552
5760 min Summer	2.033	3280
7200 min Summer	1.715	3896
8640 min Summer	1.492	4584
10080 min Summer	1.326	5336
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	9.636	0.236	0.0	2.0	2.0	113.0	Flood Risk
180 min Winter	9.655	0.255	0.0	2.1	2.1	122.2	Flood Risk
240 min Winter	9.667	0.267	0.0	2.1	2.1	128.0	Flood Risk
360 min Winter	9.681	0.281	0.0	2.2	2.2	134.6	Flood Risk
480 min Winter	9.687	0.287	0.0	2.2	2.2	137.5	Flood Risk
600 min Winter	9.689	0.289	0.0	2.2	2.2	138.3	Flood Risk
720 min Winter	9.690	0.290	0.0	2.2	2.2	138.8	Flood Risk
960 min Winter	9.684	0.284	0.0	2.2	2.2	135.8	Flood Risk
1440 min Winter	9.666	0.266	0.0	2.1	2.1	127.3	Flood Risk
2160 min Winter	9.636	0.236	0.0	2.0	2.0	113.1	Flood Risk
2880 min Winter	9.607	0.207	0.0	1.9	1.9	99.3	Flood Risk
4320 min Winter	9.555	0.155	0.0	1.9	1.9	74.3	Flood Risk
5760 min Winter	9.511	0.111	0.0	1.9	1.9	53.2	Flood Risk
7200 min Winter	9.491	0.091	0.0	1.7	1.7	43.7	Flood Risk
8640 min Winter	9.479	0.079	0.0	1.6	1.6	38.0	Flood Risk
10080 min Winter	9.472	0.072	0.0	1.4	1.4	34.3	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	236
360 min Winter	17.229	348
480 min Winter	13.964	456
600 min Winter	11.865	554
720 min Winter	10.386	576
960 min Winter	8.264	724
1440 min Winter	5.989	1036
2160 min Winter	4.340	1472
2880 min Winter	3.454	1904
4320 min Winter	2.533	2720
5760 min Winter	2.033	3288
7200 min Winter	1.715	3960
8640 min Winter	1.492	4664
10080 min Winter	1.326	5344

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.189

Time (mins)	Area (ha)
0-4	0.189

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Model Details

Storage is Online Cover Level (m) 9.700

Cellular Storage Structure

Invert Level (m) 9.400 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	504.0	0.0	0.300	504.0	0.0

Hydro-Brake® Outflow Control

Design Head (m) 0.300 Hydro-Brake® Type Md1 Invert Level (m) 9.400
Design Flow (l/s) 2.3 Diameter (mm) 61

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	4.5	3.000	7.2	7.000	11.0
0.200	1.9	1.400	4.9	3.500	7.7	7.500	11.3
0.300	2.3	1.600	5.2	4.000	8.3	8.000	11.7
0.400	2.6	1.800	5.6	4.500	8.8	8.500	12.1
0.500	2.9	2.000	5.9	5.000	9.3	9.000	12.4
0.600	3.2	2.200	6.1	5.500	9.7	9.500	12.8
0.800	3.7	2.400	6.4	6.000	10.1		
1.000	4.1	2.600	6.7	6.500	10.6		

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Appendix H9: Swale

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 473 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	10.791	0.291	0.0	0.9	0.9	26.8	Flood Risk
30 min Summer	10.813	0.313	0.0	0.9	0.9	31.8	Flood Risk
60 min Summer	10.834	0.334	0.0	1.0	1.0	37.2	Flood Risk
120 min Summer	10.853	0.353	0.0	1.0	1.0	42.6	Flood Risk
180 min Summer	10.862	0.362	0.0	1.0	1.0	45.2	Flood Risk
240 min Summer	10.866	0.366	0.0	1.0	1.0	46.5	Flood Risk
360 min Summer	10.869	0.369	0.0	1.0	1.0	47.4	Flood Risk
480 min Summer	10.869	0.369	0.0	1.0	1.0	47.4	Flood Risk
600 min Summer	10.868	0.368	0.0	1.0	1.0	47.1	Flood Risk
720 min Summer	10.867	0.367	0.0	1.0	1.0	46.6	Flood Risk
960 min Summer	10.859	0.359	0.0	1.0	1.0	44.3	Flood Risk
1440 min Summer	10.845	0.345	0.0	1.0	1.0	40.3	Flood Risk
2160 min Summer	10.826	0.326	0.0	1.0	1.0	35.1	Flood Risk
2880 min Summer	10.808	0.308	0.0	0.9	0.9	30.6	Flood Risk
4320 min Summer	10.776	0.276	0.0	0.9	0.9	23.7	Flood Risk
5760 min Summer	10.747	0.247	0.0	0.8	0.8	18.3	Flood Risk
7200 min Summer	10.721	0.221	0.0	0.8	0.8	14.1	Flood Risk
8640 min Summer	10.698	0.198	0.0	0.8	0.8	10.9	Flood Risk
10080 min Summer	10.676	0.176	0.0	0.7	0.7	8.4	Flood Risk
15 min Winter	10.806	0.306	0.0	0.9	0.9	30.1	Flood Risk
30 min Winter	10.829	0.329	0.0	1.0	1.0	35.8	Flood Risk
60 min Winter	10.851	0.351	0.0	1.0	1.0	42.1	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	175.422	19
30 min Summer	105.748	33
60 min Summer	63.747	62
120 min Summer	38.428	122
180 min Summer	28.580	182
240 min Summer	23.165	240
360 min Summer	17.229	346
480 min Summer	13.964	402
600 min Summer	11.865	466
720 min Summer	10.386	528
960 min Summer	8.264	664
1440 min Summer	5.989	938
2160 min Summer	4.340	1344
2880 min Summer	3.454	1732
4320 min Summer	2.533	2508
5760 min Summer	2.033	3232
7200 min Summer	1.715	3960
8640 min Summer	1.492	4672
10080 min Summer	1.326	5352
15 min Winter	175.422	19
30 min Winter	105.748	33
60 min Winter	63.747	62

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
120 min Winter	10.872	0.372	0.0	1.0	1.0	48.4	Flood Risk
180 min Winter	10.883	0.383	0.0	1.0	1.0	51.7	Flood Risk
240 min Winter	10.888	0.388	0.0	1.1	1.1	53.6	Flood Risk
360 min Winter	10.893	0.393	0.0	1.1	1.1	55.2	Flood Risk
480 min Winter	10.894	0.394	0.0	1.1	1.1	55.4	Flood Risk
600 min Winter	10.892	0.392	0.0	1.1	1.1	54.9	Flood Risk
720 min Winter	10.891	0.391	0.0	1.1	1.1	54.4	Flood Risk
960 min Winter	10.882	0.382	0.0	1.0	1.0	51.4	Flood Risk
1440 min Winter	10.863	0.363	0.0	1.0	1.0	45.5	Flood Risk
2160 min Winter	10.836	0.336	0.0	1.0	1.0	37.8	Flood Risk
2880 min Winter	10.810	0.310	0.0	0.9	0.9	31.1	Flood Risk
4320 min Winter	10.764	0.264	0.0	0.9	0.9	21.3	Flood Risk
5760 min Winter	10.722	0.222	0.0	0.8	0.8	14.3	Flood Risk
7200 min Winter	10.686	0.186	0.0	0.7	0.7	9.4	Flood Risk
8640 min Winter	10.653	0.153	0.0	0.7	0.7	6.1	Flood Risk
10080 min Winter	10.617	0.117	0.0	0.6	0.6	3.4	Flood Risk

Storm Event	Rain (mm/hr)	Time-Peak (mins)
120 min Winter	38.428	120
180 min Winter	28.580	178
240 min Winter	23.165	234
360 min Winter	17.229	346
480 min Winter	13.964	452
600 min Winter	11.865	494
720 min Winter	10.386	564
960 min Winter	8.264	720
1440 min Winter	5.989	1022
2160 min Winter	4.340	1448
2880 min Winter	3.454	1848
4320 min Winter	2.533	2636
5760 min Winter	2.033	3352
7200 min Winter	1.715	4040
8640 min Winter	1.492	4760
10080 min Winter	1.326	5552

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 512000 103400 TQ 12000 03400
C (1km)	-0.027
D1 (1km)	0.394
D2 (1km)	0.330
D3 (1km)	0.360
E (1km)	0.314
F (1km)	2.374
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.084

Time (mins)	Area (ha)
0-4	0.084

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Model Details

Storage is Online Cover Level (m) 10.900

Swale Structure

Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	200.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	3.0
Safety Factor	2.0	Slope (1:X)	400.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	10.500	Cap Infiltration Depth (m)	0.000
Base Width (m)	1.0		

Hydro-Brake® Outflow Control

Design Head (m) 0.400 Hydro-Brake® Type Md1 Invert Level (m) 10.500
Design Flow (l/s) 1.1 Diameter (mm) 39

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.6	1.200	1.9	3.000	2.9	7.000	4.5
0.200	0.8	1.400	2.0	3.500	3.2	7.500	4.6
0.300	0.9	1.600	2.1	4.000	3.4	8.000	4.8
0.400	1.1	1.800	2.3	4.500	3.6	8.500	4.9
0.500	1.2	2.000	2.4	5.000	3.8	9.000	5.1
0.600	1.3	2.200	2.5	5.500	4.0	9.500	5.2
0.800	1.5	2.400	2.6	6.000	4.1		
1.000	1.7	2.600	2.7	6.500	4.3		

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Appendix I:
SuDS Maintenance Schedule

Table I1: Detention Basin/Balancing Pond Operation and Maintenance Requirements

Schedule	Required Action	Frequency
Regular maintenance	Litter, debris and trash removal.	Monthly.
	Grass cutting – for landscaped areas, spillways and access routes.	Monthly (during growing season), or as required.
	Grass cutting – meadow grass in and around basin.	Half yearly (spring before nesting season and Autumn).
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required).
	Tidy all dead growth before start of growing season.	Annually.
	Remove sediment from inlets, outlets and forebay.	Annually (or as required).
	Manage wetland plants in outlet pool – where provided.	Annually.
Occasional maintenance	Re-seed areas of poor vegetation growth.	Annually, or as required.
	Prune and trim trees and remove cuttings.	2 years, or as required.
	Remove sediment from pre-treatment system when 50% full.	As required.
	Remove sediment from micropools if volume reduced by >25%.	3 – 10 years, or as required.
Remedial actions	Repair of erosion or other damage by re-seeding or re-turfing.	As required.
	Realignment of rip-rap.	As required.
	Repair/rehabilitation of inlets, outlets and overflows.	As required.
	Re-level uneven surfaces and reinstate design levels.	As required.
Monitoring	Inspect inlets, outlets and overflows for blockages and clear if required.	Monthly.
	Inspect banksides, structures, pipework etc for evidence of physical damage.	Monthly.
	Inspect inlets and and pre-treatment systems for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly.
	Check penstocks and other mechanical devices.	Half yearly.

Table I2: Swale Operation and Maintenance Requirements

Schedule	Required Action	Frequency
Regular maintenance	Remove litter and debris.	Monthly, or as required.
	Cut grass – to retain grass height within specified design range.	Monthly (during growing season), or as required.
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect inlets, outlets and overflows for blockage, and clear if required.	Monthly.
	Inspect infiltration surface for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours.	Monthly, or when required.
	Inspect vegetation coverage.	Monthly for 6 months, quarterly for 2 years, then half yearly.
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.	Half yearly.
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area.
Remedial actions	Repair of erosion or other damage by reseeding or re-turfing.	As required.
	Relevel uneven surfaces and reinstate design levels	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required.
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip.	As required.
	Remove and dispose of oils or petrol residues using safe standard practices.	As required.
	Inspect inlets and facility surfaces for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly.

Table I3: Geo-cellular Storage Operation and Maintenance Requirements

Schedule	Required Action	Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually.
	Remove debris from the catchment surface (where it may cause risk to performance).	Monthly.
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter, remove and replace surface infiltration medium as necessary.	Annually.
	Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as required).
Remedial actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As required.
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually.
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required.