

APPENDIX D – GREENFIELD RUNOFF CALCULATION

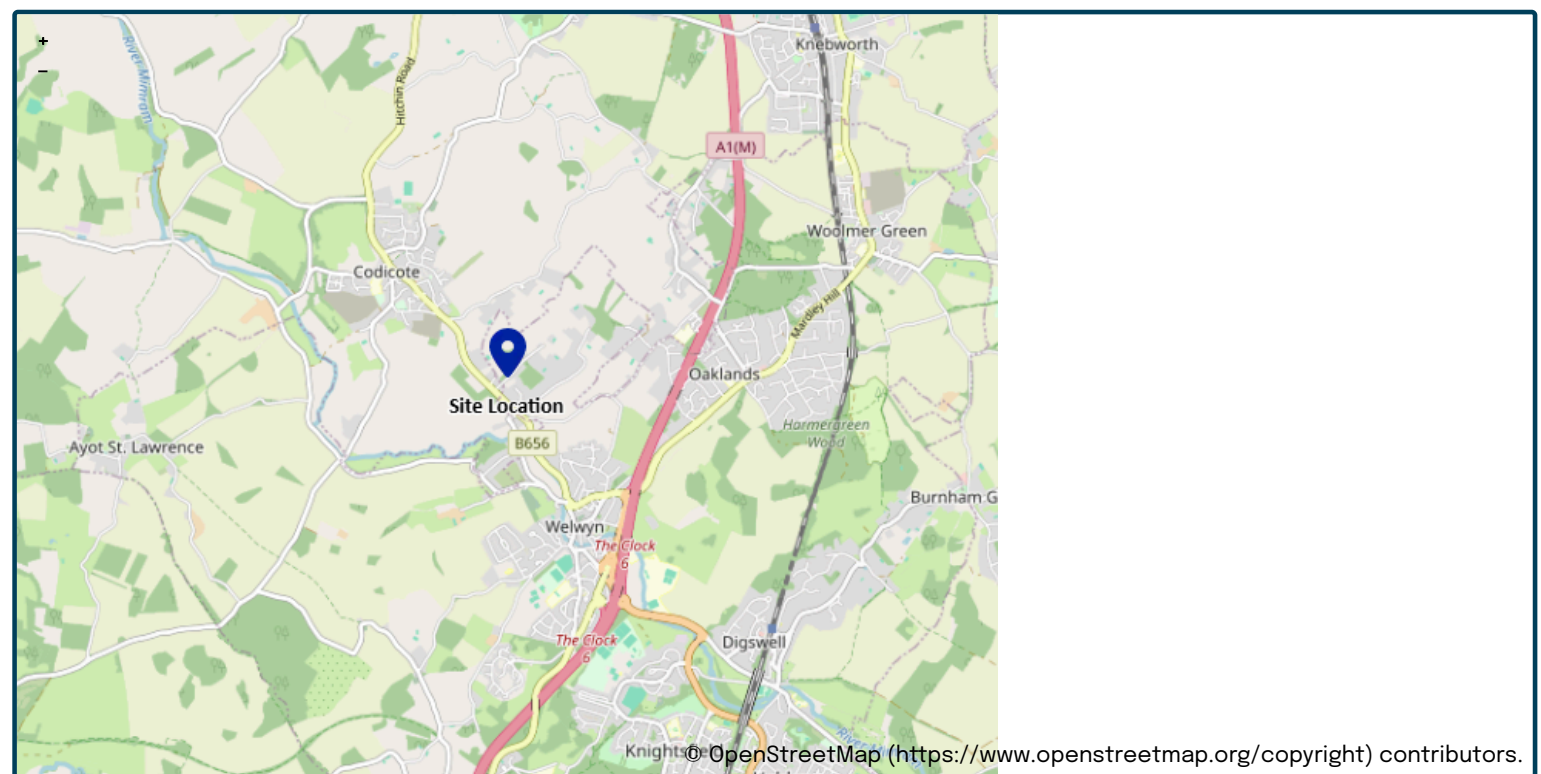
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	22/06/2026
Calculated by	
Reference	
Model version	2.2.3

Location

Site name	
Site location	



Site easting (British National Grid)	522522
Site northing (British National Grid)	217238

Site details

Total site area (ha)	4.035	ha
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Greenfield runoff

Method

Method	IH124	
IH124		
	<u>My value</u>	<u>Map value</u>
SAAR (mm)	653 mm	653
How should SPR be derived?	WRAP soil type	
WRAP soil type	2	2
SPR	0.3	
QBar (IH124) (l/s)	6.8 l/s	

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	6	6
1 year growth factor	0.85	
2 year growth factor	0.88	
10 year growth factor	1.62	
30 year growth factor	2.3	
100 year growth factor	3.19	
200 year growth factor	3.74	

Results

Method	IH124	
Flow rate 1 year (l/s)	5.8 l/s	
Flow rate 2 year (l/s)	6.0 l/s	
Flow rate 10 years (l/s)	11.0 l/s	
Flow rate 30 years (l/s)	15.6 l/s	
Flow rate 100 years (l/s)	21.6 l/s	
Flow rate 200 years (l/s)	25.4 l/s	

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

APPENDIX E – DRAINAGE CALCULATIONS

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	0.800
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
1	0.019	5.00	75.510	1200	522441.188	217187.442	1.300	74.210
2	0.064	5.00	75.050	1200	522407.852	217175.998	1.500	73.550
3	0.136	5.00	74.000	1200	522366.030	217154.948	2.000	72.000
4	0.040	5.00	73.900	1200	522364.847	217145.574	2.050	71.850
5	0.052	5.00	72.300	1200	522393.562	217087.797	1.500	70.800
6	0.124	5.00	72.700	1500	522383.167	217108.705	2.050	70.650
7	0.131	5.00	72.000	1500	522425.429	217129.497	1.850	70.150
8	0.033	5.00	70.650	1200	522489.712	217214.499	0.800	69.850
9		5.00	71.500	1200	522463.650	217198.491	1.800	69.700
10	0.026	5.00	71.250	1200	522469.895	217192.571	1.919	69.331
11	0.054	5.00	70.825	1200	522486.763	217176.581	1.649	69.176
12	0.242	5.00	70.600	1500	522499.854	217155.736	1.900	68.700
13	0.013	5.00	71.000	1200	522400.988	217080.333	1.500	69.500
14	0.077	5.00	69.850	1200	522419.536	217042.980	0.800	69.050
15	0.051	5.00	70.300	1200	522410.267	217061.646	1.458	68.842
16	0.092	5.00	70.700	1500	522440.342	217075.728	2.249	68.451
17	0.153	5.00	69.800	1500	522484.076	217091.285	1.750	68.050
18	0.227	5.00	69.500	1500	522527.018	217106.571	1.750	67.750
19			70.100	1500	522518.227	217161.839	1.200	68.900
20	0.024	5.00	69.900	1500	522526.478	217170.182	1.379	68.521
21			69.860	1200	522531.919	217174.639	1.386	68.474
22			69.900	1500	522512.236	217168.221	1.300	68.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	35.246	0.600	74.210	73.550	0.660	53.4	300	5.27	50.0
1.001	2	3	46.821	0.600	73.550	72.000	1.550	30.2	300	5.54	50.0
1.002	3	4	9.448	0.600	72.000	71.850	0.150	63.0	300	5.62	50.0
1.003	4	6	41.170	0.600	71.850	70.650	1.200	34.3	300	5.88	50.0
2.000	5	6	23.350	0.600	70.800	70.650	0.150	155.7	300	5.31	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.156	152.4	3.6	1.000	1.200	0.019	0.0	31	0.906
1.001	2.871	202.9	15.7	1.200	1.700	0.083	0.0	56	1.724
1.002	1.984	140.2	41.6	1.700	1.750	0.219	0.0	112	1.736
1.003	2.693	190.3	49.2	1.750	1.750	0.259	0.0	103	2.269
2.000	1.257	88.9	9.9	1.200	1.750	0.052	0.0	67	0.837

Links

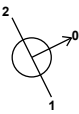
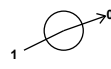
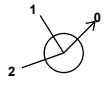
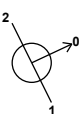
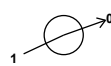
Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.004	6	7	47.100	0.600	70.650	70.150	0.500	94.2	300	6.36	50.0
1.005	7	12	78.915	0.600	70.150	68.850	1.300	60.7	300	7.01	50.0
3.000	8	10	29.556	0.600	69.850	69.481	0.369	80.0	150	5.44	50.0
4.000	9	10	8.605	0.600	69.700	69.481	0.219	39.3	150	5.09	50.0
3.001	10	11	23.242	0.600	69.331	69.176	0.155	150.0	300	5.74	50.0
3.002	11	12	24.615	0.600	69.176	68.850	0.326	75.5	300	5.97	50.0
1.006	12	22	17.584	0.600	68.700	68.600	0.100	175.8	450	7.21	50.0
5.000	13	15	20.864	0.600	69.500	68.842	0.658	31.7	300	5.12	50.0
6.000	14	15	20.841	0.600	69.050	68.842	0.208	100.0	300	5.22	50.0
5.001	15	16	33.209	0.600	68.842	68.451	0.391	84.9	300	5.55	50.0
5.002	16	17	46.419	0.600	68.451	68.050	0.401	115.8	300	6.08	50.0
5.003	17	18	45.582	0.600	68.050	67.750	0.300	151.9	300	6.67	50.0
5.004	18	19	60.302	0.600	67.750	68.900	-1.150	-52.4	100	30.00	50.0
5.005	19	20	11.740	0.600	68.900	68.821	0.079	148.6	150	30.00	50.0
1.008	20	21	7.042	0.600	68.521	68.474	0.047	150.0	150	30.00	50.0
1.007	22	20	14.376	0.600	68.600	68.521	0.079	182.0	450	7.36	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.004	1.620	114.5	82.6	1.750	1.550	0.436	0.0	190	1.759
1.005	2.021	142.9	107.4	1.550	1.450	0.566	0.0	195	2.212
3.000	1.125	19.9	6.3	0.650	1.619	0.033	0.0	58	1.002
4.000	1.610	28.5	0.0	1.650	1.619	0.000	0.0	0	0.000
3.001	1.281	90.6	11.3	1.619	1.349	0.060	0.0	71	0.882
3.002	1.811	128.0	21.5	1.349	1.450	0.113	0.0	83	1.358
1.006	1.530	243.3	174.7	1.450	0.850	0.921	0.0	283	1.659
5.000	2.802	198.0	2.5	1.200	1.158	0.013	0.0	23	0.971
6.000	1.572	111.1	14.6	0.500	1.158	0.077	0.0	73	1.098
5.001	1.707	120.6	26.6	1.158	1.949	0.140	0.0	95	1.378
5.002	1.460	103.2	44.1	1.949	1.450	0.232	0.0	137	1.404
5.003	1.273	90.0	73.2	1.450	1.450	0.386	0.0	206	1.412
5.004	0.005	0.0	116.2	1.650	1.100	0.612	0.0	100	0.000
5.005	0.822	14.5	116.2	1.050	0.929	0.612	0.0	150	0.837
1.008	0.818	14.5	295.5	1.229	1.236	1.557	0.0	150	0.833
1.007	1.504	239.1	174.7	0.850	0.929	0.921	0.0	287	1.636

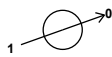
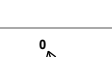
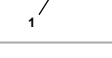
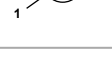
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	522441.188	217187.442	75.510	1.300	1200		0	1.000	74.210 300
2	522407.852	217175.998	75.050	1.500	1200		1	1.000	73.550 300
							0	1.001	73.550 300
3	522366.030	217154.948	74.000	2.000	1200		1	1.001	72.000 300
							0	1.002	72.000 300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
4	522364.847	217145.574	73.900	2.050	1200		1	1.002	71.850	300
							0	1.003	71.850	300
5	522393.562	217087.797	72.300	1.500	1200					
							0	2.000	70.800	300
6	522383.167	217108.705	72.700	2.050	1500		1	2.000	70.650	300
							2	1.003	70.650	300
								0	1.004	70.650
7	522425.429	217129.497	72.000	1.850	1500		1	1.004	70.150	300
								0	1.005	70.150
8	522489.712	217214.499	70.650	0.800	1200		0	3.000	69.850	150
9	522463.650	217198.491	71.500	1.800	1200		0	4.000	69.700	150
10	522469.895	217192.571	71.250	1.919	1200		1	4.000	69.481	150
							2	3.000	69.481	150
								0	3.001	69.331
11	522486.763	217176.581	70.825	1.649	1200		1	3.001	69.176	300
								0	3.002	69.176
12	522499.854	217155.736	70.600	1.900	1500		1	3.002	68.850	300
							2	1.005	68.850	300
								0	1.006	68.700
13	522400.988	217080.333	71.000	1.500	1200		0	5.000	69.500	300
14	522419.536	217042.980	69.850	0.800	1200					
								0	6.000	69.050
15	522410.267	217061.646	70.300	1.458	1200		1	6.000	68.842	300
							2	5.000	68.842	300
								0	5.001	68.842
16	522440.342	217075.728	70.700	2.249	1500		1	5.001	68.451	300
								0	5.002	68.451

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
17	522484.076	217091.285	69.800	1.750	1500		1 5.002	68.050	300
							0 5.003	68.050	300
18	522527.018	217106.571	69.500	1.750	1500		1 5.003	67.750	300
							0 5.004	67.750	100
19	522518.227	217161.839	70.100	1.200	1500		1 5.004	68.900	100
							0 5.005	68.900	150
20	522526.478	217170.182	69.900	1.379	1500		1 5.005	68.821	150
							2 1.007	68.521	450
							0 1.008	68.521	150
21	522531.919	217174.639	69.860	1.386	1200		1 1.008	68.474	150
22	522512.236	217168.221	69.900	1.300	1500		1 1.006	68.600	450
							0 1.007	68.600	450

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
Rainfall Events	Singular	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	20.0
M5-60 (mm)	20.000	Starting Level (m)	
Ratio-R	0.400	Check Discharge Rate(s)	x
Summer CV	0.750	Check Discharge Volume	x
Analysis Speed	Normal		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)								
1	0	0	0								
30	0	0	0								
100	40	0	0								

Node 20 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	68.521	Product Number	CTL-SHE-0122-6800-1000-6800
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.8	Min Node Diameter (mm)	1200

Node 18 Online Pump Control

Flap Valve	x	Design Depth (m)	1.200	Switch off depth (m)	0.100
Replaces Downstream Link	x	Design Flow (l/s)	3.5		
Invert Level (m)	67.750	Switch on depth (m)	1.000		

Depth (m)	Flow (l/s)
1.200	3.500

Node 18 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	67.750
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	102.0	102.0	0.800	102.0	130.6	0.801	0.0	130.6

Node 17 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	68.050
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	123.0	123.0	0.800	123.0	154.5	0.801	0.0	154.5

Node 12 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	68.700
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	216.0	216.0	1.200	216.0	278.5	1.201	0.0	278.5

Node 7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	70.150
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	126.0	126.0	1.200	126.0	173.7	1.201	0.0	173.7

Node 16 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	68.451
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	480

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	87.0	87.0	1.200	87.0	126.7	1.201	0.0	126.7

Node 22 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	68.600
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	144.0	144.0	0.800	144.0	178.0	0.801	0.0	178.0

Node 20 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	68.521
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	198.0	198.0	0.800	198.0	237.9	0.801	0.0	237.9

Node 18 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	67.750
Side Inf Coefficient (m/hr)	0.00360	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	150.0	150.0	0.800	150.0	184.7	0.801	0.0	184.7

Node 6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.650
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	4

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	104.0	104.0	0.800	104.0	132.9	0.801	0.0	132.9

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	74.236	0.026	2.5	0.0376	0.0000	OK
15 minute summer	2	11	73.597	0.047	11.0	0.0928	0.0000	OK
15 minute summer	3	11	72.101	0.101	29.0	0.2526	0.0000	OK
15 minute summer	4	10	71.939	0.089	33.8	0.1350	0.0000	OK
15 minute summer	5	10	70.856	0.056	7.0	0.1028	0.0000	OK
30 minute summer	6	21	70.773	0.123	52.0	13.1561	0.0000	OK
60 minute summer	7	39	70.250	0.100	40.8	12.2294	0.0000	OK
15 minute summer	8	11	69.899	0.049	4.5	0.0956	0.0000	OK
15 minute summer	9	1	69.700	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10	11	69.391	0.060	7.8	0.0841	0.0000	OK
15 minute summer	11	11	69.247	0.071	14.8	0.1255	0.0000	OK
60 minute summer	12	42	68.831	0.131	53.8	27.4828	0.0000	OK
15 minute summer	13	11	69.520	0.020	1.7	0.0259	0.0000	OK
15 minute summer	14	10	69.111	0.061	10.3	0.1855	0.0000	OK
15 minute summer	15	10	68.928	0.086	18.6	0.1566	0.0000	OK
30 minute summer	16	21	68.539	0.088	28.1	7.4656	0.0000	OK
1440 minute summer	17	1470	68.196	0.146	3.9	17.6035	0.0000	OK
1440 minute summer	18	1470	68.196	0.446	6.1	108.7762	0.0000	SURCHARGED
15 minute summer	19	1	68.900	0.000	0.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	2.4	0.501	0.016	0.1758	
15 minute summer	2	1.001	3	10.8	0.801	0.053	0.6521	
15 minute summer	3	1.002	4	28.6	1.533	0.204	0.1805	
15 minute summer	4	1.003	6	34.3	2.239	0.180	0.8170	
15 minute summer	5	2.000	6	7.0	0.742	0.078	0.3808	
15 minute summer	6	1.004	7	33.2	1.719	0.290	0.9503	
60 minute summer	7	1.005	12	33.4	1.656	0.234	1.5907	
60 minute summer	7	Infiltration		0.1				
15 minute summer	8	3.000	10	4.4	0.898	0.220	0.1443	
15 minute summer	9	4.000	10	0.0	0.000	0.000	0.0000	
15 minute summer	10	3.001	11	7.8	0.696	0.087	0.2620	
15 minute summer	11	3.002	12	14.8	1.200	0.115	0.3031	
30 minute summer	12	1.006	22	37.2	1.603	0.153	0.5594	
60 minute summer	12	Infiltration		0.1				
30 minute summer	13	5.000	15	1.6	0.215	0.008	0.1718	
15 minute summer	14	6.000	15	10.1	0.769	0.091	0.2792	
15 minute summer	15	5.001	16	18.9	1.539	0.157	0.4846	
15 minute summer	16	5.002	17	16.9	1.166	0.163	0.6992	
30 minute summer	16	Infiltration		0.0				
30 minute summer	17	5.003	18	18.7	1.076	0.208	0.9776	
1440 minute summer	17	Infiltration		0.1				
15 minute summer	18	5.004	19	0.0	0.000	0.000	0.0000	
1440 minute summer	18	Infiltration		0.1				
1440 minute summer	18	Infiltration		0.1				
15 minute summer	19	5.005	20	0.0	0.000	0.000	0.0000	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	20	256	68.786	0.265	18.7	50.3394	0.0000	SURCHARGED
360 minute summer	21	256	68.544	0.070	6.5	0.0000	0.0000	OK
360 minute summer	22	256	68.784	0.184	22.5	25.4645	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	20	1.008	21	6.5	0.767	0.452	0.0600	125.2
360 minute summer	20	Infiltration		0.1				
60 minute summer	22	1.007	20	35.7	1.542	0.149	0.8372	
360 minute summer	22	Infiltration		0.1				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.50%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	74.251	0.041	6.2	0.0578	0.0000	OK
15 minute summer	2	10	73.623	0.073	27.2	0.1451	0.0000	OK
15 minute summer	3	10	72.174	0.174	71.5	0.4349	0.0000	OK
15 minute summer	4	10	71.989	0.139	83.5	0.2111	0.0000	OK
15 minute summer	5	10	70.888	0.088	17.2	0.1608	0.0000	OK
15 minute summer	6	13	70.882	0.232	141.3	24.8651	0.0000	OK
30 minute summer	7	22	70.344	0.194	128.0	23.8549	0.0000	OK
15 minute summer	8	10	69.931	0.081	11.0	0.1589	0.0000	OK
15 minute summer	9	1	69.700	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10	10	69.428	0.097	19.3	0.1366	0.0000	OK
15 minute summer	11	11	69.291	0.115	36.7	0.2039	0.0000	OK
240 minute summer	12	240	69.042	0.342	73.3	71.6721	0.0000	OK
15 minute summer	13	10	69.530	0.030	4.3	0.0396	0.0000	OK
15 minute summer	14	10	69.150	0.100	25.3	0.3065	0.0000	OK
15 minute summer	15	10	68.976	0.134	45.8	0.2448	0.0000	OK
15 minute summer	16	13	68.611	0.160	75.9	13.5954	0.0000	OK
1440 minute summer	17	1470	68.591	0.541	8.1	65.1277	0.0000	SURCHARGED
1440 minute summer	18	1470	68.591	0.841	8.4	195.3039	0.0000	SURCHARGED
240 minute summer	19	244	69.042	0.142	3.8	0.2509	0.0000	OK
Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	6.1	0.658	0.040	0.3341	
15 minute summer	2	1.001	3	26.7	0.976	0.132	1.3038	
15 minute summer	3	1.002	4	70.4	1.910	0.502	0.3510	
15 minute summer	4	1.003	6	83.6	2.413	0.439	1.7868	
15 minute summer	5	2.000	6	17.0	0.827	0.191	0.8532	
15 minute summer	6	1.004	7	99.6	2.064	0.870	2.3401	
30 minute summer	7	1.005	12	103.1	2.193	0.722	3.7185	
30 minute summer	7	Infiltration		0.1				
15 minute summer	8	3.000	10	10.7	1.132	0.539	0.2799	
15 minute summer	9	4.000	10	0.0	0.000	0.000	0.0000	
15 minute summer	10	3.001	11	19.2	0.868	0.212	0.5151	
15 minute summer	11	3.002	12	36.5	1.530	0.285	0.5868	
15 minute summer	12	1.006	22	113.6	2.177	0.467	1.2564	
240 minute summer	12	Infiltration		0.1				
15 minute summer	13	5.000	15	4.3	0.273	0.021	0.3566	
15 minute summer	14	6.000	15	25.0	0.988	0.225	0.5328	
15 minute summer	15	5.001	16	45.8	1.696	0.379	1.0645	
15 minute summer	16	5.002	17	55.0	1.449	0.533	1.8303	
15 minute summer	16	Infiltration		0.0				
15 minute summer	17	5.003	18	57.1	1.383	0.634	2.1470	
1440 minute summer	17	Infiltration		0.1				
120 minute summer	18	5.004	19	-3.2	-0.667	-85.438	0.4718	
1440 minute summer	18	Infiltration		0.1				
1440 minute summer	18	Infiltration		0.1				
180 minute summer	19	5.005	20	-3.9	-0.315	-0.265	0.2006	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.50%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	20	244	69.042	0.521	40.3	99.0936	0.0000	SURCHARGED
120 minute summer	21	302	68.546	0.072	6.8	0.0000	0.0000	OK
240 minute summer	22	244	69.042	0.442	63.6	61.2504	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	20	1.008	21	6.8	0.774	0.469	0.0616	106.1
240 minute summer	20	Infiltration		0.1				
30 minute summer	22	1.007	20	109.2	2.075	0.457	1.7999	
240 minute summer	22	Infiltration		0.1				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	74.264	0.054	11.2	0.0772	0.0000	OK
15 minute summer	2	10	73.649	0.099	49.3	0.1972	0.0000	OK
15 minute summer	3	10	72.278	0.278	130.2	0.6925	0.0000	OK
15 minute summer	4	10	72.055	0.205	151.6	0.3116	0.0000	OK
30 minute summer	5	21	71.117	0.317	28.2	0.5789	0.0000	SURCHARGED
30 minute summer	6	21	71.113	0.463	229.9	49.5315	0.0000	SURCHARGED
30 minute summer	7	23	70.432	0.282	188.3	34.5925	0.0000	OK
15 minute summer	8	11	69.977	0.127	20.0	0.2507	0.0000	OK
600 minute summer	9	615	69.879	0.179	0.1	0.2030	0.0000	SURCHARGED
600 minute summer	10	615	69.880	0.548	4.5	0.7712	0.0000	SURCHARGED
600 minute summer	11	615	69.880	0.704	8.5	1.2522	0.0000	SURCHARGED
600 minute summer	12	615	69.880	1.180	68.3	247.1220	0.0000	SURCHARGED
15 minute summer	13	10	69.540	0.040	7.8	0.0525	0.0000	OK
1440 minute summer	14	1050	69.466	0.416	2.9	1.2703	0.0000	SURCHARGED
1440 minute summer	15	1050	69.466	0.624	5.3	1.1390	0.0000	SURCHARGED
1440 minute summer	16	1050	69.466	1.015	11.0	86.5182	0.0000	SURCHARGED
1440 minute summer	17	1050	69.466	1.416	15.4	98.5212	0.0000	SURCHARGED
1440 minute summer	18	1050	69.466	1.716	15.1	199.1134	0.0000	FLOOD RISK
600 minute summer	19	615	69.885	0.985	3.5	1.7412	0.0000	FLOOD RISK
Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	11.1	0.778	0.073	0.5118	
30 minute summer	2	1.001	3	44.6	1.053	0.220	1.9317	
30 minute summer	3	1.002	4	117.8	2.118	0.840	0.5201	
15 minute summer	4	1.003	6	150.9	2.557	0.793	2.5048	
15 minute summer	5	2.000	6	28.6	0.903	0.322	1.6443	
15 minute summer	6	1.004	7	130.0	2.093	1.135	3.1842	
30 minute summer	7	1.005	12	149.0	2.301	1.043	5.4116	
30 minute summer	7	Infiltration		0.1				
15 minute summer	8	3.000	10	19.5	1.255	0.981	0.4720	
240 minute summer	9	4.000	10	-0.1	-0.007	-0.003	0.0889	
15 minute summer	10	3.001	11	34.8	0.990	0.384	0.8175	
15 minute summer	11	3.002	12	66.1	1.768	0.516	0.9200	
15 minute summer	12	1.006	22	217.8	2.516	0.895	2.3618	
600 minute summer	12	Infiltration		0.1				
15 minute summer	13	5.000	15	7.7	0.304	0.039	0.5603	
15 minute summer	14	6.000	15	45.5	1.113	0.409	0.8502	
15 minute summer	15	5.001	16	82.4	1.790	0.683	1.7710	
15 minute summer	16	5.002	17	100.1	1.572	0.970	3.1117	
1440 minute summer	16	Infiltration		0.1				
15 minute summer	17	5.003	18	94.2	1.466	1.047	3.2099	
1440 minute summer	17	Infiltration		0.1				
60 minute summer	18	5.004	19	-6.5	-0.977	-173.081	0.4718	
1440 minute summer	18	Infiltration		0.1				
1440 minute summer	18	Infiltration		0.1				
60 minute summer	19	5.005	20	-9.8	-0.599	-0.671	0.2067	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	20	615	69.879	1.358	28.3	153.4485	0.0000	FLOOD RISK
600 minute summer	21	615	68.551	0.077	7.6	0.0000	0.0000	OK
600 minute summer	22	615	69.879	1.279	42.2	111.7692	0.0000	FLOOD RISK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	20	1.008	21	7.6	0.796	0.527	0.0674	286.5
600 minute summer	20	Infiltration		0.1				
15 minute summer	22	1.007	20	171.4	2.338	0.717	2.2299	
600 minute summer	22	Infiltration		0.1				