

Drainage Note - Feb 19

1). The Approved FRA confirms Q_{bar} (the mean annual maximum flow rate) for the undeveloped site. Under their new policy for infrastructure charges, Water Authorities are obliged to permit these surface water discharge rates for connections to their sewers where no other means of surface water disposal are available (ie infiltration or watercourses). A formal application for a sewer connection has been submitted to Southern Water.

2). I can confirm that an allowance for 10% urban creep for roof areas has been included in the calculations for surface water run-off. Calculations have been attached for HCC's consideration.

3). Surface Water run-off from the development discharges to the public sewer at the Southern end of the site via a length of new sewer which will be offered for adoption to Southern Water. Given the clayey nature of the near surface site soils, no surface water run-off discharges to the ground by infiltration and as such there is no risk of groundwater contamination.

In accordance with Table 26.2 of the Suds Manual C753, the pollution hazard level for this site is low, and the comprehensive system of catchpits and attenuation tanks included in the scheme should be deemed sufficient for the treatment of surface water run-off, provided the Surface Water Maintenance Plan is adhered to.

4). Exceedance flows have been considered for the site. To demonstrate that in these events there will be no risk of flooding to private properties, please see attached Levels Layouts indicating Exceedance Flow Paths.

5). The Estate Management Company will be responsible for the maintenance of the surface water drainage system upstream of the adopted public sewer. The Surface Water Maintenance Plan which will be adhered by them is attached.

Castle Avenue - Havant

Surface Water Maintenance scheme -

This document sets out the principles for the long-term management & maintenance of the surface water network within the proposed development and provides information in order to clear the planning condition relating to drainage, to ensure that the proposed development does not flood and ensure future maintenance of the surface water drainage system.

Surface Water System Maintenance

The following maintenance should be carried out every six months by experienced personnel:

- Assess the depth of accumulated silt and keep a detailed log of when the chamber is inspected.
- Parking area gullies to be cleaned
- Storm pipes to be inspected and jetted where required.

Flow Control Chamber

Key Maintenance Requirements:

- The hydraulic vortex flow control unit has no moving parts and is self-activating, requiring minimal maintenance.
- After initial installation, it is recommended that the unit be inspected monthly for three months.
- Thereafter the manhole chamber and control device should be inspected at least every six months to verify the condition and operation of the unit and check for blockages within the inlet of the chamber and of the flow control device.
- During these inspections, accumulated silts should be removed and the sump cleaned out using a conventional sump vacuum cleaner.
- Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.

Cellular Attenuation

Key Maintenance Requirements:

- Regular inspection of silt traps, manholes, pipework and pre-treatment devices, with removal of sediment and debris as required.
- Regular inspection and maintenance is required to ensure the effective long-term operation of below ground modular storage systems.
- Maintenance responsibility for systems should be placed with a responsible organisation such as a management company.

Maintenance schedule	Required action	Recommended Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Where rainfall infiltrates into blocks from above, check surface of filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)
	Remove sediment from pre-treatment structures	Annually, or as required
Remedial actions	Repair/rehabilitation of inlets, outlet , 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 and after large storms

Adopted SW Sewers.

It should be noted that the surface water proposals include a discharge from the site to new sewers being offered for adoption to Southern Water. Until these sewers are adopted they will be the responsibility of the Developer and the same maintenance regime as specified for the private drainage system should be adhered to.

CASTLE AVENUE DRAINED AREAS

Nodes	Road (m²)	Drive (m²)	Roofs (m²)	10% Urban Creep of roofs (m²)	Total Areas (m²)
S5	556	345	575	57	1,533
S6					
↓	0	122	370	37	530
S7					
↓	178	145	261	26	610
S8					
↓	140	92	386	39	657
S9					
↓	513	222	212	21	968
S10					
↓	241	210	368	37	856
S11					
↓	380	221	305	30	936
S12					
↓	281	284	361	36	962
S13					
↓	350	439	659	66	1,513
S14					
↓	57	90	0	0	147
S15					

8711.16

0.872

0.153

0.053

0.061

0.097

0.024

0.094

0.039

0.066

0.061

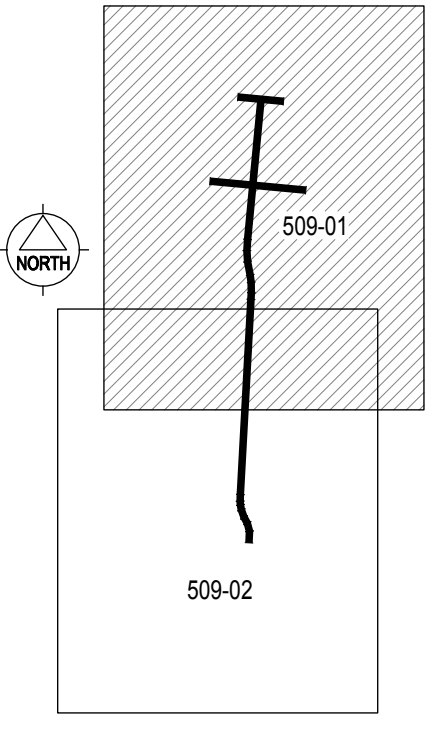
0.058

0.151

0.015



- Legend:
- Proposed level
 - Existing ground level
 - Banking
 - Underbuild
 - Stepped DPC
 - Location and number of steps
 - Tree protection fencing
 - Retaining wall and retained height
 - Concrete gravel board/slab on edge and retained height
 - Flood flow route



Drawing Sheet Key Plan

Refer to 509-02 for continuation

Refer to 509-02 for continuation

E	27.02.19	Flood flow routes identified	MA
D	19.02.19	Levels amended for Plots 3-9 to suit revised engineering layout	MA
C	22.01.19	Drawing title and status amended. Underbuilds plot 12 indicated	KAM
B	21.01.19	Levels amended to suit omission of table top. Plot 1 and 2 FFLs amended and retaining structure updated accordingly	MA
A	14.01.19	Initial issue	MA
Rev	Date	Details	Initials

CONSTRUCTION

Project
Castle Avenue, Havant



Drawing Title Engineering Details Levels Layout 1 of 2			
Drawn MA	Checked KN	Scales 1:250	Paper Size A1
Job No. ES1857	Drawing No. 509-01	Date 01.19	Revision E

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E	27.02.19	Flood flow routes identified	MA
D	19.02.19	Levels amended for parking area adjacent to POS to suit revised engineering layout	MA
C	22.01.19	Drawing title and status amended.	KAM
B	21.01.19	Minor amendments to suit Client's comments	MA
A	14.01.19	Initial issue	MA
Rev	Date	Details	Initials
Drawing Status			
CONSTRUCTION			
Project			
Castle Avenue, Havant			
Client			
Drawing Title			
Engineering Details Levels Layout 2 of 2			
Drawn	Checked	Scales	Paper Size
MA	KN	1:250	A1
Job No.	Drawing No.	Date	Revision
ES1857	509-02	01.19	E

Drainage Design Report

Flow

v8.1

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Network	Storm Network 1
Filename	E:\escher\Persimmon (Southern)\Castle Lane, Havant - ES1857\Flow\NETWORK - Rev A.PFD
Username	Hoa Nguyen (hoa.n@eschers.co.uk)
Last analysed	28/02/2019 14:54:19
Report produced on	28/02/2019 14:54:51

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Rainfall Methodology	FSR
Return Period (years)	30
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.400
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	4.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	1.500
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

	Name	US Node	DS Node	Length (m)	ks (mm) / n	Velocity Equation	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/hr)	Con Offset (m)	Min DS IL (m)	Lateral Area (ha)	Lateral Ins Point (%)	Lateral T of E (mins)
✓	1.000	S5T	S5	2.064	0.600	Colebrook-White	10.540	10.435	0.105	19.7	150	Circular_Default Sewer Type	4.02	50.0					
✓	1.001	S5	S6	38.411	0.600	Colebrook-White	10.435	9.795	0.640	60.0	150	Circular_Default Sewer Type	4.51	50.0					
✓	3.000	S6/1	S6	4.493	0.600	Colebrook-White	10.725	10.500	0.225	20.0	100	Circular_Default Sewer Type	4.04	50.0					
?	2.000	S6/2	S6	14.200	0.600	Colebrook-White	10.500	10.358	0.142	100.0	100	Circular_Default Sewer Type	4.31	50.0					
✓	1.002	S6	S7	17.813	0.600	Colebrook-White	9.720	9.615	0.105	170.0	225	Circular_Default Sewer Type	4.80	50.0					
?	4.000	S7/1	S7	6.220	0.600	Colebrook-White	10.500	10.376	0.124	50.0	100	Circular_Default Sewer Type	4.09	50.0					
?	5.000	S7/2	S7	4.324	0.600	Colebrook-White	10.500	10.414	0.086	50.0	100	Circular_Default Sewer Type	4.07	50.0					
✓	1.003	S7	S8	19.870	0.600	Colebrook-White	9.615	9.498	0.117	170.0	225	Circular_Default Sewer Type	5.14	50.0					
✓	6.000	S8T	S8	8.480	0.600	Colebrook-White	9.658	9.573	0.085	100.0	150	Circular_Default Sewer Type	4.14	50.0					
✓	1.004	S8	S9	19.838	0.600	Colebrook-White	9.423	9.342	0.081	245.0	300	Circular_Default Sewer Type	5.47	50.0					
?	7.000	S9/1	S9	4.112	0.600	Colebrook-White	10.105	10.023	0.082	50.0	100	Circular_Default Sewer Type	4.06	50.0					
✓	1.005	S9	S10	31.135	0.600	Colebrook-White	9.342	9.019	0.323	96.4	300	Circular_Default Sewer Type	5.79	50.0					
✓	8.000	S10T	S10	3.054	0.600	Colebrook-White	9.200	9.169	0.031	100.0	150	Circular_Default Sewer Type	4.05	50.0					
✓	1.006	S10	S11	19.867	0.600	Colebrook-White	9.019	8.938	0.081	245.0	300	Circular_Default Sewer Type	6.12	50.0					
?	9.000	S11/1	S11	3.958	0.600	Colebrook-White	10.200	10.002	0.198	20.0	100	Circular_Default Sewer Type	4.04	50.0					
✓	1.007	S11	S12	34.374	0.600	Colebrook-White	8.938	8.550	0.388	88.6	300	Circular_Default Sewer Type	6.46	50.0					
?	10.000	S12T	S12	2.608	0.600	Colebrook-White	9.080	8.700	0.380	6.9	150	Circular_Default Sewer Type	4.01	50.0					
?	1.008	S12	S13	46.508	0.600	Colebrook-White	8.050	8.049	0.001	90000.0	1500	Aquacell	13.81	50.0					
?	11.000	S13/1	S13	6.109	0.600	Colebrook-White	10.000	9.859	0.141	43.3	100	Circular_Default Sewer Type	4.09	50.0					
?	12.000	S13/2	S13	5.512	0.600	Colebrook-White	10.000	9.907	0.093	59.3	100	Circular_Default Sewer Type	4.09	50.0					
✓	1.009	S13	S14	19.127	0.600	Colebrook-White	8.049	8.002	0.047	405.0	450	Circular_Default Sewer Type	14.12	50.0					
✓	1.010	S14	S15	10.656	0.600	Colebrook-White	8.002	7.976	0.026	405.0	450	Circular_Default Sewer Type	14.30	50.0					

	Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
✓	1.000	S5T	S5	2.282	40.3	20.7	1.290	1.385	1.290	1.385	0.153	0.0	76	2.300
✓	1.001	S5	S6	1.301	23.0	20.7	1.385	1.875	1.385	1.875	0.153	0.0	112	1.468
✓	3.000	S6/1	S6	1.734	13.6	0.0	1.200	1.220	1.200	1.220	0.000	0.0	0	0.000
?	2.000	S6/2	S6	0.769	6.0	0.0	0.975	1.362	0.975	1.362	0.000	0.0	0	0.000
✓	1.002	S6	S7	1.000	39.7	27.9	1.875	1.700	1.700	1.875	0.206	0.0	139	1.080
?	4.000	S7/1	S7	1.092	8.6	0.0	1.080	1.064	1.064	1.080	0.000	0.0	0	0.000
?	5.000	S7/2	S7	1.092	8.6	0.0	1.075	1.026	1.026	1.075	0.000	0.0	0	0.000
✓	1.003	S7	S8	1.000	39.7	36.2	1.700	1.667	1.667	1.700	0.267	0.0	169	1.129
✓	6.000	S8T	S8	1.005	17.8	8.9	1.672	1.667	1.667	1.672	0.066	0.0	75	1.006
✓	1.004	S8	S9	1.000	70.7	45.1	1.667	1.638	1.638	1.667	0.333	0.0	174	1.058
?	7.000	S9/1	S9	1.092	8.6	0.0	1.200	1.157	1.157	1.200	0.000	0.0	0	0.000
✓	1.005	S9	S10	1.601	113.2	58.3	1.638	1.811	1.638	1.811	0.430	0.0	153	1.613
✓	8.000	S10T	S10	1.005	17.8	8.3	1.780	1.811	1.780	1.811	0.061	0.0	72	0.986
✓	1.006	S10	S11	1.000	70.7	69.8	1.811	1.782	1.782	1.811	0.515	0.0	244	1.134
?	9.000	S11/1	S11	1.734	13.6	0.0	1.200	0.918	0.918	1.200	0.000	0.0	0	0.000
✓	1.007	S11	S12	1.671	118.1	82.5	1.782	2.010	1.782	2.010	0.609	0.0	185	1.803
?	10.000	S12T	S12	3.871	68.4	7.9	1.750	2.010	1.750	2.010	0.058	0.0	34	2.592
?	1.008	S12	S13	0.106	126.7	95.7	2.010	1.771	1.771	2.010	0.706	0.0	536	0.119
?	11.000	S13/1	S13	1.175	9.2	0.0	0.766	0.661	0.661	0.766	0.000	0.0	0	0.000
?	12.000	S13/2	S13	1.002	7.9	0.0	0.652	0.613	0.613	0.652	0.000	0.0	0	0.000
✓	1.009	S13	S14	1.004	159.6	116.1	2.121	2.068	2.068	2.121	0.857	0.0	285	1.091
✓	1.010	S14	S15	1.004	159.6	118.2	2.068	2.034	2.034	2.068	0.872	0.0	289	1.094

Rainfall Methodology	FSR		Return Period (years)	Climate Change (%)
FSR Region	England and Wales		100	40
M5-60 (mm)	19.400			
Ratio-R	0.350			
Summer CV	0.750			
Winter CV	0.840			
Analysis Speed	Normal			
Skip Steady State	x			
Drain Down Time (mins)	240			
Additional Storage (m³/ha)	20.0			
Storm Durations (mins)	15			
	30			
	60			
	120			
	180			
	240			
	360			
	480			
	600			
	720			
	960			
	1440			
Check Discharge Rate(s)	x			
1 year (l/s)				
30 year (l/s)				
100 year (l/s)				
Check Discharge Volume	x			
100 year 360 minute (m³)				

Hydro-Brake®												
Node	Flap Valve	Online / Offline	Replaces Downstream Link	Loop to Node	Invert Level (m)	Design Depth (m)	Design Flow (l/s)	Objective	Sump Available	Product Number	Min Outlet Diameter (m)	Min Node Diameter (mm)
S5	x	Online	✓		10.435	0.543	3.4	(HE) Minimise upstream storage	✓	CTL-SHE-0094-3400-0543-3400	0.150	1200
S15	x	Online	✓		7.976	1.747	8.4	(HE) Minimise upstream storage	✓	CTL-SHE-0124-8400-1747-8400	0.150	1200

Depth/Area/Inf Area									
Node	Base Inf Coefficient (m/hr)	Side Inf Coefficient (m/hr)	Safety Factor	Porosity	Invert Level (m)	Time to half empty (mins)	Depth (m)	Area (m²)	Inf. Area (m²)
S5T	0.00000	0.00000	1.0	0.95	10.500	0	0.000	152.0	0.0
							0.400	152.0	0.0
S8T	0.00000	0.00000	1.0	0.95	9.618	5	0.000	20.0	0.0
							0.800	20.0	0.0
S10T	0.00000	0.00000	1.0	0.95	9.160	256	0.000	152.0	0.0
							0.800	152.0	0.0
S12T	0.00000	0.00000	1.0	0.95	8.930		0.000	139.0	0.0
							0.800	139.0	0.0

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +40% 15 minute summer	450.644	127.517
100 year +40% 15 minute winter	316.241	127.517
100 year +40% 30 minute summer	302.866	85.701
100 year +40% 30 minute winter	212.537	85.701
100 year +40% 60 minute summer	207.956	54.957
100 year +40% 60 minute winter	138.161	54.957
100 year +40% 120 minute summer	128.693	34.010
100 year +40% 120 minute winter	85.501	34.010
100 year +40% 180 minute summer	98.297	25.295
100 year +40% 180 minute winter	63.895	25.295
100 year +40% 240 minute summer	77.009	20.351
100 year +40% 240 minute winter	51.163	20.351
100 year +40% 360 minute summer	58.178	14.971
100 year +40% 360 minute winter	37.817	14.971
100 year +40% 480 minute summer	45.515	12.028
100 year +40% 480 minute winter	30.239	12.028
100 year +40% 600 minute summer	37.076	10.141
100 year +40% 600 minute winter	25.333	10.141
100 year +40% 720 minute summer	32.897	8.817
100 year +40% 720 minute winter	22.109	8.817
100 year +40% 960 minute summer	26.822	7.063
100 year +40% 960 minute winter	17.767	7.063
100 year +40% 1440 minute summer	19.242	5.157
100 year +40% 1440 minute winter	12.932	5.157

Results for 100 year +40% Critical Storm Duration. Lowest mass balance: 99.74%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	S5T	118	10.990	0.450	30.5	65.9236	0.0000	SURCHARGED	1.000	S5	9.0	0.664	0.223	0.0363	
120 minute winter	S5	118	10.988	0.553	9.0	0.9774	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
30 minute winter	S6	21	10.707	0.987	28.5	1.6151	0.0000	SURCHARGED	1.002	S7	21.8	0.702	0.549	0.7084	
30 minute winter	S7	21	10.677	1.062	50.7	1.8737	0.0000	SURCHARGED	1.003	S8	45.1	1.160	1.135	0.7903	
30 minute winter	S8	22	10.554	1.131	62.9	1.2790	0.0000	SURCHARGED	1.004	S9	60.9	1.015	0.862	1.3970	
30 minute winter	S9	21	10.525	1.183	101.7	2.5223	0.0000	SURCHARGED	1.005	S10	93.4	1.341	0.826	2.1925	
30 minute winter	S10	21	10.422	1.403	103.5	2.3280	0.0000	SURCHARGED	1.006	S11	84.8	1.204	1.199	1.3990	
30 minute winter	S11	21	10.420	1.482	124.3	3.4597	0.0000	SURCHARGED	1.007	S12	117.8	1.816	0.997	2.4206	
30 minute winter	S12	20	10.406	2.356	143.5	4.0265	0.0000	SURCHARGED	1.008	S13	65.6	0.140	0.518	55.8558	
15 minute summer	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0041	
30 minute winter	S6/2	21	10.709	0.209	3.4	0.0332	0.0000	SURCHARGED	2.000	S6	-3.4	-0.481	-0.566	0.1111	
30 minute winter	S7/1	21	10.677	0.177	2.8	0.0282	0.0000	SURCHARGED	4.000	S7	-2.8	-0.409	-0.330	0.0487	
30 minute winter	S7/2	21	10.678	0.178	2.9	0.0283	0.0000	SURCHARGED	5.000	S7	-2.9	-0.393	-0.333	0.0338	
30 minute winter	S8T	23	10.591	0.933	53.6	18.5466	0.0000	SURCHARGED	6.000	S8	27.1	1.540	1.527	0.1493	
30 minute winter	S9/1	21	10.526	0.421	5.3	0.0669	0.0000	SURCHARGED	7.000	S9	-5.3	-0.684	-0.624	0.0322	
480 minute winter	S10T	464	10.295	1.095	22.0	158.9673	0.0000	SURCHARGED	8.000	S10	-17.7	-1.008	-0.999	0.0538	
30 minute winter	S11/1	21	10.421	0.221	2.1	0.0351	0.0000	SURCHARGED	9.000	S11	-2.1	-0.270	-0.155	0.0310	
480 minute winter	S12T	464	10.293	1.213	22.1	161.0371	0.0000	SURCHARGED	10.000	S12	-19.3	1.580	-0.282	0.0459	
30 minute winter	S13/1	20	10.408	0.408	4.7	0.0649	0.0000	SURCHARGED	11.000	S13	-4.7	-0.595	-0.504	0.0478	
30 minute winter	S13/2	20	10.408	0.408	4.5	0.0649	0.0000	SURCHARGED	12.000	S13	-4.5	-0.577	-0.574	0.0431	
30 minute winter	S13	20	10.406	2.357	135.3	6.1432	0.0000	FLOOD RISK	1.009	S14	123.5	0.780	0.774	3.0305	
30 minute winter	S14	20	10.407	2.405	130.4	3.7300	0.0000	FLOOD RISK	1.010	S15	74.8	0.472	0.469	1.6884	
30 minute winter	S15	20	10.407	2.431	74.8	4.2962	0.0000	OK	Hydro-Brake®		9.8				129.4

Results for 100 year +40% 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 99.87%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S5T	18	10.768	0.228	93.9	33.4339	0.0000	SURCHARGED	1.000	S5	9.0	0.843	0.222	0.0363	
15 minute summer	S5	18	10.767	0.332	9.0	0.5864	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
15 minute summer	S6	11	10.528	0.808	35.9	1.3223	0.0000	SURCHARGED	1.002	S7	30.2	0.759	0.759	0.7084	
15 minute summer	S7	11	10.453	0.838	66.7	1.4783	0.0000	SURCHARGED	1.003	S8	61.8	1.555	1.555	0.7903	
15 minute summer	S8	12	10.203	0.780	65.0	0.8823	0.0000	SURCHARGED	1.004	S9	63.6	0.961	0.899	1.3970	
15 minute summer	S9	13	10.163	0.821	112.7	1.7500	0.0000	SURCHARGED	1.005	S10	110.1	1.564	0.973	2.1925	
15 minute summer	S10	13	10.039	1.020	122.3	1.6925	0.0000	SURCHARGED	1.006	S11	82.7	1.183	1.171	1.3990	
15 minute summer	S11	13	10.031	1.093	140.0	2.5503	0.0000	SURCHARGED	1.007	S12	138.0	1.960	1.168	2.4206	
15 minute summer	S12	13	10.016	1.966	174.2	3.3597	0.0000	SURCHARGED	1.008	S13	111.5	0.165	0.880	55.8558	
15 minute summer	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0041	
15 minute summer	S6/2	11	10.517	0.017	1.0	0.0027	0.0000	OK	2.000	S6	-1.0	0.293	-0.159	0.0616	
15 minute summer	S7/1	1	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0200	
15 minute summer	S7/2	1	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0060	
15 minute summer	S8T	13	10.231	0.573	49.0	11.3821	0.0000	SURCHARGED	6.000	S8	26.5	1.507	1.494	0.1493	
15 minute summer	S9/1	13	10.162	0.057	1.8	0.0091	0.0000	OK	7.000	S9	-1.8	-0.353	-0.213	0.0257	
15 minute summer	S10T	21	9.498	0.298	77.7	43.1528	0.0000	SURCHARGED	8.000	S10	-59.8	-3.398	-3.370	0.0538	
15 minute summer	S11/1	1	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0037	
15 minute summer	S12T	36	9.438	0.358	85.1	47.4867	0.0000	SURCHARGED	10.000	S12	-68.3	-3.878	-0.998	0.0459	
15 minute summer	S13/1	13	10.015	0.015	0.0	0.0023	0.0000	OK	11.000	S13	0.5	0.258	0.049	0.0261	
15 minute summer	S13/2	13	10.014	0.014	0.0	0.0023	0.0000	OK	12.000	S13	0.4	0.303	0.046	0.0234	
15 minute summer	S13	13	10.014	1.965	188.0	5.1206	0.0000	SURCHARGED	1.009	S14	126.9	0.801	0.795	3.0305	
15 minute summer	S14	13	10.000	1.998	134.5	3.0987	0.0000	SURCHARGED	1.010	S15	87.7	0.554	0.550	1.6884	
15 minute summer	S15	13	9.993	2.017	87.7	3.5645	0.0000	OK	Hydro-Brake®		9.0				112.8

Results for 100 year +40% 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.77%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S5T	18	10.798	0.258	93.9	37.8030	0.0000	SURCHARGED	1.000	S5	8.8	0.852	0.217	0.0363	
15 minute winter	S5	18	10.797	0.362	8.8	0.6393	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
15 minute winter	S6	12	10.571	0.851	35.9	1.3915	0.0000	SURCHARGED	1.002	S7	30.5	0.768	0.768	0.7084	
15 minute winter	S7	12	10.523	0.908	67.9	1.6034	0.0000	SURCHARGED	1.003	S8	62.3	1.567	1.568	0.7903	
15 minute winter	S8	13	10.385	0.962	66.6	1.0882	0.0000	SURCHARGED	1.004	S9	62.6	0.947	0.885	1.3970	
15 minute winter	S9	13	10.360	1.018	113.4	2.1694	0.0000	SURCHARGED	1.005	S10	108.6	1.542	0.959	2.1925	
15 minute winter	S10	13	10.252	1.233	123.3	2.0460	0.0000	SURCHARGED	1.006	S11	84.5	1.200	1.195	1.3990	
15 minute winter	S11	13	10.246	1.308	140.9	3.0524	0.0000	SURCHARGED	1.007	S12	139.1	1.975	1.178	2.4206	
15 minute winter	S12	13	10.230	2.180	179.4	3.7262	0.0000	SURCHARGED	1.008	S13	49.6	0.138	0.391	55.8558	
15 minute winter	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0133	
15 minute winter	S6/2	12	10.579	0.079	1.9	0.0125	0.0000	OK	2.000	S6	-1.9	0.301	-0.321	0.1026	
15 minute winter	S7/1	13	10.526	0.026	0.6	0.0042	0.0000	OK	4.000	S7	1.1	0.265	0.127	0.0294	
15 minute winter	S7/2	13	10.523	0.023	0.6	0.0036	0.0000	OK	5.000	S7	0.9	0.254	0.110	0.0198	
15 minute winter	S8T	14	10.417	0.759	47.7	15.0895	0.0000	SURCHARGED	6.000	S8	30.9	1.754	1.739	0.1493	
15 minute winter	S9/1	13	10.353	0.248	3.2	0.0395	0.0000	SURCHARGED	7.000	S9	-3.2	-0.413	-0.377	0.0322	
15 minute winter	S10T	23	9.555	0.355	90.9	51.4972	0.0000	SURCHARGED	8.000	S10	-67.6	-3.843	-3.811	0.0538	
15 minute winter	S11/1	13	10.259	0.059	0.3	0.0094	0.0000	OK	9.000	S11	1.6	0.220	0.114	0.0250	
15 minute winter	S12T	37	9.504	0.424	98.1	56.2925	0.0000	SURCHARGED	10.000	S12	-76.0	-4.319	-1.111	0.0459	
15 minute winter	S13/1	13	10.231	0.231	6.2	0.0367	0.0000	SURCHARGED	11.000	S13	-6.2	-0.790	-0.670	0.0478	
15 minute winter	S13/2	13	10.231	0.231	6.1	0.0367	0.0000	SURCHARGED	12.000	S13	-6.1	-0.779	-0.775	0.0431	
15 minute winter	S13	13	10.230	2.181	128.6	5.6837	0.0000	SURCHARGED	1.009	S14	64.5	0.645	0.404	3.0305	
15 minute winter	S14	13	10.229	2.227	72.4	3.4534	0.0000	FLOOD RISK	1.010	S15	35.4	0.426	0.222	1.6884	
15 minute winter	S15	13	10.227	2.251	35.4	3.9781	0.0000	OK	Hydro-Brake®		9.5				115.7

Results for 100 year +40% 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 99.91%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S5T	33	10.838	0.298	84.2	43.5696	0.0000	SURCHARGED	1.000	S5	8.7	0.751	0.215	0.0363	
30 minute summer	S5	33	10.836	0.401	8.7	0.7089	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
30 minute summer	S6	20	10.624	0.904	32.5	1.4787	0.0000	SURCHARGED	1.002	S7	26.7	0.709	0.672	0.7084	
30 minute summer	S7	20	10.589	0.974	60.3	1.7186	0.0000	SURCHARGED	1.003	S8	54.8	1.379	1.379	0.7903	
30 minute summer	S8	20	10.455	1.032	58.6	1.1669	0.0000	SURCHARGED	1.004	S9	56.0	0.996	0.793	1.3970	
30 minute summer	S9	20	10.440	1.098	104.5	2.3399	0.0000	SURCHARGED	1.005	S10	95.9	1.361	0.847	2.1925	
30 minute summer	S10	20	10.348	1.329	109.1	2.2054	0.0000	SURCHARGED	1.006	S11	82.2	1.186	1.163	1.3990	
30 minute summer	S11	20	10.350	1.412	128.2	3.2945	0.0000	SURCHARGED	1.007	S12	121.8	1.807	1.032	2.4206	
30 minute summer	S12	20	10.343	2.293	151.9	3.9189	0.0000	SURCHARGED	1.008	S13	64.0	0.149	0.505	55.8558	
30 minute summer	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0176	
30 minute summer	S6/2	20	10.634	0.134	2.8	0.0214	0.0000	SURCHARGED	2.000	S6	-2.8	-0.456	-0.465	0.1111	
30 minute summer	S7/1	20	10.591	0.091	2.2	0.0145	0.0000	OK	4.000	S7	-2.2	-0.374	-0.251	0.0476	
30 minute summer	S7/2	20	10.588	0.088	2.3	0.0140	0.0000	OK	5.000	S7	-2.3	-0.389	-0.273	0.0327	
30 minute summer	S8T	22	10.462	0.804	54.3	15.9715	0.0000	SURCHARGED	6.000	S8	27.3	1.553	1.540	0.1493	
30 minute summer	S9/1	20	10.440	0.335	3.3	0.0532	0.0000	SURCHARGED	7.000	S9	-3.3	-0.605	-0.385	0.0322	
30 minute summer	S10T	35	9.658	0.458	97.1	66.4758	0.0000	SURCHARGED	8.000	S10	-71.4	-4.057	-4.022	0.0538	
30 minute summer	S11/1	20	10.351	0.151	3.9	0.0240	0.0000	SURCHARGED	9.000	S11	-3.9	-0.499	-0.286	0.0310	
30 minute summer	S12T	45	9.622	0.542	104.5	71.8797	0.0000	SURCHARGED	10.000	S12	-80.1	-4.551	-1.171	0.0459	
30 minute summer	S13/1	20	10.345	0.345	3.3	0.0549	0.0000	SURCHARGED	11.000	S13	-3.3	-0.626	-0.356	0.0478	
30 minute summer	S13/2	20	10.345	0.345	3.5	0.0549	0.0000	SURCHARGED	12.000	S13	-3.5	-0.665	-0.450	0.0431	
30 minute summer	S13	20	10.343	2.294	147.1	5.9779	0.0000	FLOOD RISK	1.009	S14	95.8	0.605	0.600	3.0305	
30 minute summer	S14	20	10.338	2.336	104.1	3.6226	0.0000	FLOOD RISK	1.010	S15	57.3	0.369	0.359	1.6884	
30 minute summer	S15	20	10.335	2.359	57.3	4.1684	0.0000	OK	Hydro-Brake®		9.7				126.2

Results for 100 year +40% 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.91%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	S5T	32	10.877	0.337	72.8	49.3003	0.0000	SURCHARGED	1.000	S5	8.9	0.785	0.220	0.0363	
30 minute winter	S5	32	10.875	0.440	8.9	0.7777	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
30 minute winter	S6	21	10.707	0.987	28.5	1.6151	0.0000	SURCHARGED	1.002	S7	21.8	0.702	0.549	0.7084	
30 minute winter	S7	21	10.677	1.062	50.7	1.8737	0.0000	SURCHARGED	1.003	S8	45.1	1.160	1.135	0.7903	
30 minute winter	S8	22	10.554	1.131	62.9	1.2790	0.0000	SURCHARGED	1.004	S9	60.9	1.015	0.862	1.3970	
30 minute winter	S9	21	10.525	1.183	101.7	2.5223	0.0000	SURCHARGED	1.005	S10	93.4	1.341	0.826	2.1925	
30 minute winter	S10	21	10.422	1.403	103.5	2.3280	0.0000	SURCHARGED	1.006	S11	84.8	1.204	1.199	1.3990	
30 minute winter	S11	21	10.420	1.482	124.3	3.4597	0.0000	SURCHARGED	1.007	S12	117.8	1.816	0.997	2.4206	
30 minute winter	S12	20	10.406	2.356	143.5	4.0265	0.0000	SURCHARGED	1.008	S13	65.6	0.140	0.518	55.8558	
30 minute winter	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0176	
30 minute winter	S6/2	21	10.709	0.209	3.4	0.0332	0.0000	SURCHARGED	2.000	S6	-3.4	-0.481	-0.566	0.1111	
30 minute winter	S7/1	21	10.677	0.177	2.8	0.0282	0.0000	SURCHARGED	4.000	S7	-2.8	-0.409	-0.330	0.0487	
30 minute winter	S7/2	21	10.678	0.178	2.9	0.0283	0.0000	SURCHARGED	5.000	S7	-2.9	-0.393	-0.333	0.0338	
30 minute winter	S8T	23	10.591	0.933	53.6	18.5466	0.0000	SURCHARGED	6.000	S8	27.1	1.540	1.527	0.1493	
30 minute winter	S9/1	21	10.526	0.421	5.3	0.0669	0.0000	SURCHARGED	7.000	S9	-5.3	-0.684	-0.624	0.0322	
30 minute winter	S10T	36	9.737	0.537	97.6	77.9062	0.0000	SURCHARGED	8.000	S10	-72.8	-4.135	-4.100	0.0538	
30 minute winter	S11/1	21	10.421	0.221	2.1	0.0351	0.0000	SURCHARGED	9.000	S11	-2.1	-0.270	-0.155	0.0310	
30 minute winter	S12T	45	9.709	0.629	104.1	83.4431	0.0000	SURCHARGED	10.000	S12	-80.3	-4.559	-1.173	0.0459	
30 minute winter	S13/1	20	10.408	0.408	4.7	0.0649	0.0000	SURCHARGED	11.000	S13	-4.7	-0.595	-0.504	0.0478	
30 minute winter	S13/2	20	10.408	0.408	4.5	0.0649	0.0000	SURCHARGED	12.000	S13	-4.5	-0.577	-0.574	0.0431	
30 minute winter	S13	20	10.406	2.357	135.3	6.1432	0.0000	FLOOD RISK	1.009	S14	123.5	0.780	0.774	3.0305	
30 minute winter	S14	20	10.407	2.405	130.4	3.7300	0.0000	FLOOD RISK	1.010	S15	74.8	0.472	0.469	1.6884	
30 minute winter	S15	20	10.407	2.431	74.8	4.2962	0.0000	OK	Hydro-Brake®		9.8				129.4

Results for 100 year +40% 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 99.78%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S5T	62	10.897	0.357	61.9	52.2369	0.0000	SURCHARGED	1.000	S5	9.9	0.688	0.246	0.0363	
60 minute summer	S5	62	10.895	0.460	9.9	0.8130	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
60 minute summer	S6	36	10.570	0.850	24.7	1.3907	0.0000	SURCHARGED	1.002	S7	21.0	0.696	0.530	0.7084	
60 minute summer	S7	36	10.546	0.931	44.3	1.6424	0.0000	SURCHARGED	1.003	S8	39.8	1.139	1.002	0.7903	
60 minute summer	S8	37	10.451	1.028	56.5	1.1627	0.0000	SURCHARGED	1.004	S9	48.5	1.006	0.687	1.3970	
60 minute summer	S9	36	10.416	1.074	78.0	2.2899	0.0000	SURCHARGED	1.005	S10	75.3	1.297	0.665	2.1925	
60 minute summer	S10	35	10.310	1.291	82.6	2.1414	0.0000	SURCHARGED	1.006	S11	73.4	1.154	1.038	1.3990	
60 minute summer	S11	35	10.309	1.371	102.0	3.2011	0.0000	SURCHARGED	1.007	S12	86.7	1.709	0.734	2.4206	
60 minute summer	S12	35	10.295	2.245	105.2	3.8361	0.0000	SURCHARGED	1.008	S13	77.0	0.122	0.608	55.8558	
60 minute summer	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0132	
60 minute summer	S6/2	35	10.570	0.070	1.5	0.0111	0.0000	OK	2.000	S6	-1.5	-0.271	-0.243	0.0972	
60 minute summer	S7/1	36	10.546	0.046	0.6	0.0074	0.0000	OK	4.000	S7	-0.6	0.242	-0.069	0.0353	
60 minute summer	S7/2	36	10.546	0.046	0.6	0.0073	0.0000	OK	5.000	S7	-0.6	0.237	-0.074	0.0244	
60 minute summer	S8T	38	10.495	0.837	47.5	16.6294	0.0000	SURCHARGED	6.000	S8	24.9	1.412	1.400	0.1493	
60 minute summer	S9/1	36	10.416	0.311	1.8	0.0494	0.0000	SURCHARGED	7.000	S9	-1.8	-0.334	-0.204	0.0322	
60 minute summer	S10T	63	9.816	0.616	90.7	89.4316	0.0000	SURCHARGED	8.000	S10	-68.4	-3.887	-3.854	0.0538	
60 minute summer	S11/1	35	10.310	0.110	1.8	0.0175	0.0000	SURCHARGED	9.000	S11	-1.8	-0.236	-0.135	0.0310	
60 minute summer	S12T	65	9.808	0.728	96.5	96.6475	0.0000	SURCHARGED	10.000	S12	-75.2	-4.270	-1.099	0.0459	
60 minute summer	S13/1	35	10.296	0.296	2.3	0.0471	0.0000	SURCHARGED	11.000	S13	-2.3	-0.409	-0.247	0.0478	
60 minute summer	S13/2	35	10.296	0.296	2.4	0.0470	0.0000	SURCHARGED	12.000	S13	-2.4	-0.419	-0.300	0.0431	
60 minute summer	S13	35	10.295	2.246	122.9	5.8519	0.0000	SURCHARGED	1.009	S14	95.8	0.605	0.600	3.0305	
60 minute summer	S14	35	10.295	2.293	100.4	3.5562	0.0000	FLOOD RISK	1.010	S15	59.9	0.378	0.375	1.6884	
60 minute summer	S15	35	10.295	2.319	59.9	4.0973	0.0000	OK	Hydro-Brake®		9.6				146.1

Results for 100 year +40% 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 99.74%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	S5T	61	10.947	0.407	48.7	59.6416	0.0000	SURCHARGED	1.000	S5	9.5	0.712	0.235	0.0363	
60 minute winter	S5	61	10.945	0.510	9.5	0.9019	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
60 minute winter	S6	38	10.534	0.814	20.1	1.3313	0.0000	SURCHARGED	1.002	S7	18.0	0.691	0.453	0.7084	
60 minute winter	S7	38	10.513	0.898	37.2	1.5853	0.0000	SURCHARGED	1.003	S8	35.1	1.091	0.884	0.7903	
60 minute winter	S8	38	10.433	1.010	48.4	1.1421	0.0000	SURCHARGED	1.004	S9	44.3	1.002	0.627	1.3970	
60 minute winter	S9	38	10.400	1.058	69.0	2.2554	0.0000	SURCHARGED	1.005	S10	68.1	1.246	0.601	2.1925	
60 minute winter	S10	38	10.283	1.264	74.2	2.0977	0.0000	SURCHARGED	1.006	S11	63.5	1.165	0.898	1.3990	
60 minute winter	S11	38	10.282	1.344	85.5	3.1377	0.0000	SURCHARGED	1.007	S12	84.6	1.731	0.716	2.4206	
60 minute winter	S12	38	10.255	2.205	102.5	3.7685	0.0000	SURCHARGED	1.008	S13	-34.7	0.128	-0.274	55.8558	
60 minute winter	S6/1	1	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0052	
60 minute winter	S6/2	38	10.536	0.036	0.8	0.0057	0.0000	OK	2.000	S6	-0.8	0.173	-0.127	0.0735	
60 minute winter	S7/1	38	10.513	0.013	0.2	0.0021	0.0000	OK	4.000	S7	0.2	-0.048	0.027	0.0263	
60 minute winter	S7/2	38	10.513	0.013	0.2	0.0021	0.0000	OK	5.000	S7	0.2	-0.053	0.025	0.0182	
60 minute winter	S8T	40	10.483	0.825	32.2	16.3971	0.0000	SURCHARGED	6.000	S8	20.9	1.185	1.175	0.1493	
60 minute winter	S9/1	38	10.400	0.295	1.6	0.0469	0.0000	SURCHARGED	7.000	S9	-1.6	0.204	-0.186	0.0322	
60 minute winter	S10T	62	9.928	0.728	80.7	105.6021	0.0000	SURCHARGED	8.000	S10	-62.7	-3.564	-3.534	0.0538	
60 minute winter	S11/1	38	10.282	0.082	0.8	0.0130	0.0000	OK	9.000	S11	-0.8	-0.156	-0.056	0.0291	
60 minute winter	S12T	64	9.920	0.840	85.8	111.4479	0.0000	SURCHARGED	10.000	S12	-68.3	-3.883	-0.999	0.0459	
60 minute winter	S13/1	38	10.257	0.257	1.3	0.0409	0.0000	SURCHARGED	11.000	S13	-1.3	-0.218	-0.142	0.0478	
60 minute winter	S13/2	38	10.257	0.257	1.1	0.0409	0.0000	SURCHARGED	12.000	S13	-1.1	-0.227	-0.145	0.0431	
60 minute winter	S13	38	10.258	2.209	65.7	5.7574	0.0000	SURCHARGED	1.009	S14	15.1	0.510	0.095	3.0305	
60 minute winter	S14	38	10.255	2.253	19.0	3.4949	0.0000	FLOOD RISK	1.010	S15	15.1	0.343	0.095	1.6884	
60 minute winter	S15	38	10.257	2.281	15.1	4.0303	0.0000	OK	Hydro-Brake®		9.5				149.9

Results for 100 year +40% 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 99.78%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	S5T	120	10.928	0.388	41.0	56.8420	0.0000	SURCHARGED	1.000	S5	8.9	0.623	0.220	0.0363	
120 minute summer	S5	120	10.926	0.491	8.9	0.8683	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
120 minute summer	S6	66	10.277	0.557	17.4	0.9117	0.0000	SURCHARGED	1.002	S7	15.3	0.677	0.386	0.7084	
120 minute summer	S7	66	10.260	0.645	31.7	1.1384	0.0000	SURCHARGED	1.003	S8	29.5	1.016	0.741	0.7903	
120 minute summer	S8	68	10.199	0.776	35.4	0.8776	0.0000	SURCHARGED	1.004	S9	35.8	0.952	0.506	1.3970	
120 minute summer	S9	68	10.171	0.829	54.1	1.7685	0.0000	SURCHARGED	1.005	S10	53.6	1.098	0.474	2.1925	
120 minute summer	S10	68	10.081	1.062	58.6	1.7623	0.0000	SURCHARGED	1.006	S11	42.3	1.139	0.599	1.3990	
120 minute summer	S11	68	10.080	1.142	55.1	2.6646	0.0000	SURCHARGED	1.007	S12	54.0	1.466	0.457	2.4206	
120 minute summer	S12	68	10.056	2.006	64.7	3.4291	0.0000	SURCHARGED	1.008	S13	-28.9	0.091	-0.228	55.8558	
120 minute summer	S6/1	2	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
120 minute summer	S6/2	2	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
120 minute summer	S7/1	2	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
120 minute summer	S7/2	2	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
120 minute summer	S8T	68	10.238	0.580	23.7	11.5254	0.0000	SURCHARGED	6.000	S8	15.5	1.000	0.875	0.1493	
120 minute summer	S9/1	68	10.172	0.067	0.2	0.0106	0.0000	OK	7.000	S9	0.4	0.056	0.041	0.0275	
120 minute summer	S10T	122	9.976	0.776	69.5	112.5281	0.0000	SURCHARGED	8.000	S10	-54.2	-3.080	-3.054	0.0538	
120 minute summer	S11/1	2	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0129	
120 minute summer	S12T	122	9.973	0.893	73.9	118.5660	0.0000	SURCHARGED	10.000	S12	-59.4	-3.373	-0.868	0.0459	
120 minute summer	S13/1	68	10.060	0.060	0.5	0.0095	0.0000	OK	11.000	S13	-0.5	-0.099	-0.050	0.0387	
120 minute summer	S13/2	68	10.060	0.060	0.5	0.0095	0.0000	OK	12.000	S13	-0.5	-0.104	-0.060	0.0350	
120 minute summer	S13	68	10.060	2.011	45.8	5.2400	0.0000	SURCHARGED	1.009	S14	10.8	0.446	0.068	3.0305	
120 minute summer	S14	68	10.057	2.055	13.6	3.1866	0.0000	SURCHARGED	1.010	S15	11.6	0.283	0.073	1.6884	
120 minute summer	S15	68	10.058	2.082	11.6	3.6789	0.0000	OK	Hydro-Brake®		9.1				179.8

Results for 100 year +40% 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 99.76%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	S5T	118	10.990	0.450	30.5	65.9236	0.0000	SURCHARGED	1.000	S5	9.0	0.664	0.223	0.0363	
120 minute winter	S5	118	10.988	0.553	9.0	0.9774	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
120 minute winter	S6	72	10.180	0.460	13.8	0.7533	0.0000	SURCHARGED	1.002	S7	12.8	0.668	0.323	0.7084	
120 minute winter	S7	72	10.169	0.554	25.0	0.9787	0.0000	SURCHARGED	1.003	S8	23.9	0.989	0.601	0.7903	
120 minute winter	S8	74	10.133	0.710	33.0	0.8033	0.0000	SURCHARGED	1.004	S9	29.1	0.907	0.412	1.3970	
120 minute winter	S9	118	10.117	0.775	45.7	1.6525	0.0000	SURCHARGED	1.005	S10	45.2	1.077	0.399	2.1925	
120 minute winter	S10	120	10.116	1.097	49.5	1.8192	0.0000	SURCHARGED	1.006	S11	41.3	1.119	0.584	1.3990	
120 minute winter	S11	120	10.115	1.177	53.7	2.7471	0.0000	SURCHARGED	1.007	S12	49.5	1.474	0.419	2.4206	
120 minute winter	S12	122	10.114	2.064	59.5	3.5278	0.0000	SURCHARGED	1.008	S13	22.9	0.087	0.181	55.8558	
120 minute winter	S6/1	2	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
120 minute winter	S6/2	2	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
120 minute winter	S7/1	2	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
120 minute winter	S7/2	2	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
120 minute winter	S8T	74	10.163	0.505	13.2	10.0339	0.0000	SURCHARGED	6.000	S8	10.2	0.978	0.575	0.1493	
120 minute winter	S9/1	118	10.117	0.012	0.1	0.0019	0.0000	OK	7.000	S9	-0.1	-0.038	-0.016	0.0168	
120 minute winter	S10T	122	10.116	0.916	56.6	132.8993	0.0000	SURCHARGED	8.000	S10	-44.7	-2.540	-2.518	0.0538	
120 minute winter	S11/1	2	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0155	
120 minute winter	S12T	120	10.113	1.033	60.2	137.1956	0.0000	SURCHARGED	10.000	S12	-48.8	-2.771	-0.713	0.0459	
120 minute winter	S13/1	120	10.114	0.114	0.2	0.0181	0.0000	SURCHARGED	11.000	S13	-0.2	-0.038	-0.022	0.0478	
120 minute winter	S13/2	120	10.114	0.114	0.2	0.0181	0.0000	SURCHARGED	12.000	S13	-0.2	-0.039	-0.025	0.0431	
120 minute winter	S13	120	10.115	2.066	40.9	5.3842	0.0000	SURCHARGED	1.009	S14	10.7	0.451	0.067	3.0305	
120 minute winter	S14	122	10.113	2.111	11.7	3.2747	0.0000	SURCHARGED	1.010	S15	9.8	0.300	0.061	1.6884	
120 minute winter	S15	120	10.114	2.138	9.8	3.7777	0.0000	OK	Hydro-Brake®		9.2				184.3

Results for 100 year +40% 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 99.85%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	S5T	156	10.924	0.384	31.3	56.2898	0.0000	SURCHARGED	1.000	S5	9.4	0.619	0.234	0.0363	
180 minute summer	S5	156	10.923	0.488	9.4	0.8616	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
180 minute summer	S6	100	10.060	0.340	14.1	0.5566	0.0000	SURCHARGED	1.002	S7	12.6	0.658	0.318	0.7084	
180 minute summer	S7	180	10.053	0.438	24.7	0.7732	0.0000	SURCHARGED	1.003	S8	23.2	0.972	0.584	0.7903	
180 minute summer	S8	180	10.051	0.628	28.7	0.7100	0.0000	SURCHARGED	1.004	S9	28.7	0.906	0.407	1.3970	
180 minute summer	S9	180	10.050	0.708	44.5	1.5095	0.0000	SURCHARGED	1.005	S10	44.0	1.023	0.389	2.1925	
180 minute summer	S10	180	10.048	1.029	48.2	1.7076	0.0000	SURCHARGED	1.006	S11	32.2	1.067	0.455	1.3990	
180 minute summer	S11	180	10.047	1.109	41.2	2.5895	0.0000	SURCHARGED	1.007	S12	40.6	1.331	0.344	2.4206	
180 minute summer	S12	180	10.046	1.996	48.4	3.4117	0.0000	SURCHARGED	1.008	S13	-21.4	0.064	-0.169	55.8558	
180 minute summer	S6/1	4	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
180 minute summer	S6/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
180 minute summer	S7/1	4	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
180 minute summer	S7/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
180 minute summer	S8T	180	10.051	0.393	14.4	7.8028	0.0000	SURCHARGED	6.000	S8	9.9	0.957	0.558	0.1493	
180 minute summer	S9/1	4	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0035	
180 minute summer	S10T	184	10.048	0.848	54.8	123.1101	0.0000	SURCHARGED	8.000	S10	-43.0	-2.443	-2.422	0.0538	
180 minute summer	S11/1	4	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0069	
180 minute summer	S12T	184	10.046	0.966	58.9	128.2124	0.0000	SURCHARGED	10.000	S12	-47.0	-2.671	-0.687	0.0459	
180 minute summer	S13/1	180	10.046	0.046	0.1	0.0073	0.0000	OK	11.000	S13	0.1	0.019	0.011	0.0346	
180 minute summer	S13/2	180	10.046	0.046	0.1	0.0073	0.0000	OK	12.000	S13	-0.1	-0.012	-0.008	0.0312	
180 minute summer	S13	180	10.045	1.996	33.1	5.2014	0.0000	SURCHARGED	1.009	S14	13.1	0.410	0.082	3.0305	
180 minute summer	S14	180	10.045	2.043	14.5	3.1693	0.0000	SURCHARGED	1.010	S15	10.5	0.277	0.066	1.6884	
180 minute summer	S15	180	10.045	2.069	10.5	3.6561	0.0000	OK	Hydro-Brake®		9.1				210.3

Results for 100 year +40% 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 99.79%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	S5T	172	10.990	0.450	22.8	65.8722	0.0000	SURCHARGED	1.000	S5	8.3	0.658	0.206	0.0363	
180 minute winter	S5	172	10.988	0.553	8.3	0.9767	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
180 minute winter	S6	176	10.212	0.492	11.1	0.8046	0.0000	SURCHARGED	1.002	S7	10.9	0.656	0.275	0.7084	
180 minute winter	S7	176	10.210	0.595	19.7	1.0509	0.0000	SURCHARGED	1.003	S8	19.3	0.949	0.485	0.7903	
180 minute winter	S8	176	10.208	0.785	27.9	0.8881	0.0000	SURCHARGED	1.004	S9	25.1	0.886	0.355	1.3970	
180 minute winter	S9	176	10.208	0.866	37.5	1.8455	0.0000	SURCHARGED	1.005	S10	35.6	1.010	0.314	2.1925	
180 minute winter	S10	180	10.207	1.188	39.1	1.9701	0.0000	SURCHARGED	1.006	S11	30.9	1.052	0.438	1.3990	
180 minute winter	S11	180	10.205	1.267	39.2	2.9579	0.0000	SURCHARGED	1.007	S12	35.0	1.364	0.296	2.4206	
180 minute winter	S12	180	10.202	2.152	42.6	3.6783	0.0000	SURCHARGED	1.008	S13	17.9	0.072	0.141	55.8558	
180 minute winter	S6/1	4	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
180 minute winter	S6/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
180 minute winter	S7/1	4	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
180 minute winter	S7/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
180 minute winter	S8T	176	10.208	0.550	9.8	10.9346	0.0000	SURCHARGED	6.000	S8	8.6	0.939	0.487	0.1493	
180 minute winter	S9/1	176	10.208	0.103	0.1	0.0163	0.0000	SURCHARGED	7.000	S9	0.1	0.017	0.009	0.0322	
180 minute winter	S10T	180	10.207	1.007	42.8	146.1566	0.0000	SURCHARGED	8.000	S10	-33.9	-1.926	-1.909	0.0538	
180 minute winter	S11/1	180	10.206	0.006	0.0	0.0009	0.0000	OK	9.000	S11	0.1	0.020	0.007	0.0158	
180 minute winter	S12T	180	10.204	1.124	45.7	149.2728	0.0000	SURCHARGED	10.000	S12	-37.3	-2.120	-0.546	0.0459	
180 minute winter	S13/1	176	10.204	0.204	0.1	0.0325	0.0000	SURCHARGED	11.000	S13	0.2	-0.024	0.016	0.0478	
180 minute winter	S13/2	176	10.204	0.204	0.2	0.0325	0.0000	SURCHARGED	12.000	S13	-0.2	0.026	-0.021	0.0431	
180 minute winter	S13	176	10.204	2.155	31.2	5.6171	0.0000	SURCHARGED	1.009	S14	15.8	0.432	0.099	3.0305	
180 minute winter	S14	180	10.203	2.201	17.1	3.4139	0.0000	SURCHARGED	1.010	S15	13.2	0.273	0.083	1.6884	
180 minute winter	S15	176	10.203	2.227	13.2	3.9357	0.0000	OK	Hydro-Brake®		9.4				215.6

Results for 100 year +40% 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 99.84%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	S5T	188	10.914	0.374	24.5	54.7708	0.0000	SURCHARGED	1.000	S5	8.9	0.637	0.220	0.0363	
240 minute summer	S5	188	10.912	0.477	8.9	0.8434	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
240 minute summer	S6	240	10.089	0.369	11.8	0.6029	0.0000	SURCHARGED	1.002	S7	11.7	0.654	0.295	0.7084	
240 minute summer	S7	240	10.087	0.472	21.5	0.8334	0.0000	SURCHARGED	1.003	S8	19.4	0.966	0.487	0.7903	
240 minute summer	S8	240	10.085	0.662	27.5	0.7488	0.0000	SURCHARGED	1.004	S9	25.3	0.885	0.358	1.3970	
240 minute summer	S9	240	10.084	0.742	38.8	1.5828	0.0000	SURCHARGED	1.005	S10	37.5	0.973	0.331	2.1925	
240 minute summer	S10	240	10.083	1.064	41.0	1.7655	0.0000	SURCHARGED	1.006	S11	26.7	1.019	0.377	1.3990	
240 minute summer	S11	240	10.082	1.144	33.8	2.6709	0.0000	SURCHARGED	1.007	S12	33.4	1.303	0.283	2.4206	
240 minute summer	S12	240	10.082	2.032	40.5	3.4718	0.0000	SURCHARGED	1.008	S13	16.5	0.066	0.130	55.8558	
240 minute summer	S6/1	4	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
240 minute summer	S6/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
240 minute summer	S7/1	4	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
240 minute summer	S7/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
240 minute summer	S8T	240	10.085	0.427	10.6	8.4888	0.0000	SURCHARGED	6.000	S8	8.6	0.955	0.483	0.1493	
240 minute summer	S9/1	4	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0104	
240 minute summer	S10T	240	10.083	0.883	46.3	128.1499	0.0000	SURCHARGED	8.000	S10	-36.5	-2.072	-2.055	0.0538	
240 minute summer	S11/1	4	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0134	
240 minute summer	S12T	240	10.081	1.001	49.0	132.8227	0.0000	SURCHARGED	10.000	S12	-39.7	-2.254	-0.580	0.0459	
240 minute summer	S13/1	240	10.080	0.080	0.0	0.0128	0.0000	OK	11.000	S13	0.1	0.020	0.011	0.0445	
240 minute summer	S13/2	240	10.080	0.080	0.1	0.0127	0.0000	OK	12.000	S13	0.1	0.023	0.013	0.0401	
240 minute summer	S13	240	10.080	2.031	27.8	5.2933	0.0000	SURCHARGED	1.009	S14	9.7	0.405	0.061	3.0305	
240 minute summer	S14	240	10.080	2.078	10.0	3.2226	0.0000	SURCHARGED	1.010	S15	10.0	0.252	0.062	1.6884	
240 minute summer	S15	240	10.081	2.105	10.0	3.7187	0.0000	OK	Hydro-Brake®		9.2				240.0

Results for 100 year +40% 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.80%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	S5T	196	10.976	0.436	18.3	63.8177	0.0000	SURCHARGED	1.000	S5	9.4	0.666	0.234	0.0363	
240 minute winter	S5	196	10.974	0.539	9.4	0.9521	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
240 minute winter	S6	236	10.259	0.539	9.5	0.8810	0.0000	SURCHARGED	1.002	S7	9.5	0.665	0.239	0.7084	
240 minute winter	S7	236	10.257	0.642	16.8	1.1337	0.0000	SURCHARGED	1.003	S8	16.5	0.916	0.415	0.7903	
240 minute winter	S8	236	10.256	0.833	24.5	0.9418	0.0000	SURCHARGED	1.004	S9	22.4	0.869	0.317	1.3970	
240 minute winter	S9	236	10.255	0.913	33.7	1.9471	0.0000	SURCHARGED	1.005	S10	32.7	0.952	0.289	2.1925	
240 minute winter	S10	236	10.254	1.235	35.5	2.0489	0.0000	SURCHARGED	1.006	S11	24.9	1.002	0.353	1.3990	
240 minute winter	S11	236	10.253	1.315	31.3	3.0689	0.0000	SURCHARGED	1.007	S12	31.1	1.311	0.263	2.4206	
240 minute winter	S12	236	10.252	2.202	37.0	3.7624	0.0000	SURCHARGED	1.008	S13	16.2	0.064	0.128	55.8558	
240 minute winter	S6/1	4	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
240 minute winter	S6/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
240 minute winter	S7/1	4	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
240 minute winter	S7/2	4	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
240 minute winter	S8T	236	10.256	0.598	7.9	11.8740	0.0000	SURCHARGED	6.000	S8	8.0	0.914	0.453	0.1493	
240 minute winter	S9/1	236	10.255	0.150	0.1	0.0239	0.0000	SURCHARGED	7.000	S9	-0.1	-0.014	-0.009	0.0322	
240 minute winter	S10T	236	10.254	1.054	35.5	152.9998	0.0000	SURCHARGED	8.000	S10	-28.2	-1.601	-1.588	0.0538	
240 minute winter	S11/1	236	10.253	0.053	0.1	0.0084	0.0000	OK	9.000	S11	-0.1	-0.020	-0.010	0.0238	
240 minute winter	S12T	236	10.251	1.171	36.5	155.4657	0.0000	SURCHARGED	10.000	S12	-29.8	-1.806	-0.436	0.0459	
240 minute winter	S13/1	240	10.250	0.250	0.3	0.0398	0.0000	SURCHARGED	11.000	S13	-0.3	-0.041	-0.032	0.0478	
240 minute winter	S13/2	240	10.250	0.250	0.3	0.0398	0.0000	SURCHARGED	12.000	S13	-0.3	-0.039	-0.036	0.0431	
240 minute winter	S13	236	10.251	2.202	26.4	5.7391	0.0000	SURCHARGED	1.009	S14	14.6	0.411	0.091	3.0305	
240 minute winter	S14	232	10.250	2.248	15.7	3.4863	0.0000	FLOOD RISK	1.010	S15	11.5	0.269	0.072	1.6884	
240 minute winter	S15	236	10.249	2.273	11.5	4.0172	0.0000	OK	Hydro-Brake®		9.5				246.3

Results for 100 year +40% 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 99.83%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	S5T	256	10.896	0.356	18.5	52.0824	0.0000	SURCHARGED	1.000	S5	8.4	0.607	0.209	0.0363	
360 minute summer	S5	256	10.894	0.459	8.4	0.8111	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
360 minute summer	S6	360	10.107	0.387	9.7	0.6329	0.0000	SURCHARGED	1.002	S7	9.6	0.638	0.243	0.7084	
360 minute summer	S7	360	10.106	0.491	17.0	0.8662	0.0000	SURCHARGED	1.003	S8	15.2	0.915	0.381	0.7903	
360 minute summer	S8	360	10.104	0.681	22.7	0.7704	0.0000	SURCHARGED	1.004	S9	21.6	0.860	0.306	1.3970	
360 minute summer	S9	360	10.104	0.762	33.4	1.6238	0.0000	SURCHARGED	1.005	S10	32.7	0.912	0.289	2.1925	
360 minute summer	S10	360	10.103	1.084	35.6	1.7978	0.0000	SURCHARGED	1.006	S11	21.6	0.967	0.306	1.3990	
360 minute summer	S11	360	10.102	1.164	26.9	2.7161	0.0000	SURCHARGED	1.007	S12	26.7	1.200	0.226	2.4206	
360 minute summer	S12	352	10.101	2.051	32.2	3.5056	0.0000	SURCHARGED	1.008	S13	15.0	0.057	0.118	55.8558	
360 minute summer	S6/1	8	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
360 minute summer	S6/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
360 minute summer	S7/1	8	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
360 minute summer	S7/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
360 minute summer	S8T	360	10.104	0.446	8.0	8.8659	0.0000	SURCHARGED	6.000	S8	7.6	0.896	0.428	0.1493	
360 minute summer	S9/1	8	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0139	
360 minute summer	S10T	360	10.103	0.903	36.6	130.9850	0.0000	SURCHARGED	8.000	S10	-29.2	-1.660	-1.646	0.0538	
360 minute summer	S11/1	8	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0155	
360 minute summer	S12T	360	10.101	1.020	37.5	135.4765	0.0000	SURCHARGED	10.000	S12	-30.5	-1.731	-0.446	0.0459	
360 minute summer	S13/1	360	10.100	0.100	0.1	0.0159	0.0000	OK	11.000	S13	0.1	0.016	0.013	0.0478	
360 minute summer	S13/2	360	10.100	0.100	0.1	0.0159	0.0000	OK	12.000	S13	-0.1	-0.015	-0.014	0.0431	
360 minute summer	S13	360	10.100	2.051	23.6	5.3441	0.0000	SURCHARGED	1.009	S14	9.9	0.376	0.062	3.0305	
360 minute summer	S14	352	10.099	2.096	9.9	3.2517	0.0000	SURCHARGED	1.010	S15	10.7	0.230	0.067	1.6884	
360 minute summer	S15	360	10.100	2.124	10.7	3.7523	0.0000	OK	Hydro-Brake®		9.2				295.9

Results for 100 year +40% 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.82%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S5T	272	10.949	0.409	13.5	59.9786	0.0000	SURCHARGED	1.000	S5	9.4	0.655	0.233	0.0363	
360 minute winter	S5	272	10.948	0.513	9.4	0.9059	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
360 minute winter	S6	352	10.296	0.576	7.9	0.9421	0.0000	SURCHARGED	1.002	S7	7.9	0.644	0.199	0.7084	
360 minute winter	S7	352	10.295	0.680	13.3	1.1994	0.0000	SURCHARGED	1.003	S8	12.9	0.871	0.326	0.7903	
360 minute winter	S8	352	10.293	0.870	18.5	0.9837	0.0000	SURCHARGED	1.004	S9	17.2	0.824	0.243	1.3970	
360 minute winter	S9	352	10.292	0.950	25.5	2.0257	0.0000	SURCHARGED	1.005	S10	24.5	0.869	0.216	2.1925	
360 minute winter	S10	352	10.291	1.272	26.6	2.1106	0.0000	SURCHARGED	1.006	S11	18.2	0.924	0.257	1.3990	
360 minute winter	S11	352	10.290	1.352	22.4	3.1562	0.0000	SURCHARGED	1.007	S12	22.2	1.225	0.188	2.4206	
360 minute winter	S12	344	10.287	2.237	26.4	3.8236	0.0000	SURCHARGED	1.008	S13	13.3	0.060	0.105	55.8558	
360 minute winter	S6/1	8	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
360 minute winter	S6/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
360 minute winter	S7/1	8	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
360 minute winter	S7/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
360 minute winter	S8T	352	10.293	0.635	5.8	12.6159	0.0000	SURCHARGED	6.000	S8	5.6	0.847	0.315	0.1493	
360 minute winter	S9/1	352	10.292	0.187	0.2	0.0298	0.0000	SURCHARGED	7.000	S9	-0.2	-0.025	-0.018	0.0322	
360 minute winter	S10T	352	10.291	1.091	26.7	158.3837	0.0000	SURCHARGED	8.000	S10	-21.3	-1.208	-1.198	0.0538	
360 minute winter	S11/1	352	10.290	0.090	0.1	0.0144	0.0000	OK	9.000	S11	0.2	0.025	0.014	0.0302	
360 minute winter	S12T	352	10.288	1.208	27.5	160.4406	0.0000	SURCHARGED	10.000	S12	-24.0	1.598	-0.350	0.0459	
360 minute winter	S13/1	352	10.289	0.289	0.2	0.0459	0.0000	SURCHARGED	11.000	S13	-0.2	-0.020	-0.017	0.0478	
360 minute winter	S13/2	352	10.288	0.288	0.1	0.0459	0.0000	SURCHARGED	12.000	S13	0.1	0.019	0.019	0.0431	
360 minute winter	S13	352	10.289	2.240	20.1	5.8369	0.0000	SURCHARGED	1.009	S14	12.2	0.370	0.077	3.0305	
360 minute winter	S14	352	10.288	2.286	13.0	3.5449	0.0000	FLOOD RISK	1.010	S15	9.9	0.254	0.062	1.6884	
360 minute winter	S15	352	10.288	2.312	9.9	4.0846	0.0000	OK	Hydro-Brake®		9.6				304.0

Results for 100 year +40% 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 99.83%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	S5T	328	10.875	0.335	14.5	49.0425	0.0000	SURCHARGED	1.000	S5	9.2	0.642	0.229	0.0363	
480 minute summer	S5	328	10.873	0.438	9.2	0.7746	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
480 minute summer	S6	456	10.092	0.372	8.3	0.6080	0.0000	SURCHARGED	1.002	S7	8.3	0.629	0.209	0.7084	
480 minute summer	S7	456	10.091	0.476	14.1	0.8394	0.0000	SURCHARGED	1.003	S8	14.0	0.897	0.352	0.7903	
480 minute summer	S8	456	10.089	0.666	20.1	0.7534	0.0000	SURCHARGED	1.004	S9	18.9	0.830	0.268	1.3970	
480 minute summer	S9	456	10.089	0.747	28.1	1.5918	0.0000	SURCHARGED	1.005	S10	27.5	0.865	0.243	2.1925	
480 minute summer	S10	448	10.088	1.069	29.8	1.7731	0.0000	SURCHARGED	1.006	S11	22.8	0.920	0.322	1.3990	
480 minute summer	S11	448	10.087	1.149	27.7	2.6825	0.0000	SURCHARGED	1.007	S12	22.0	1.213	0.186	2.4206	
480 minute summer	S12	440	10.086	2.036	25.9	3.4801	0.0000	SURCHARGED	1.008	S13	12.7	0.053	0.100	55.8558	
480 minute summer	S6/1	8	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
480 minute summer	S6/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
480 minute summer	S7/1	8	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
480 minute summer	S7/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
480 minute summer	S8T	456	10.089	0.431	6.3	8.5655	0.0000	SURCHARGED	6.000	S8	6.5	0.878	0.365	0.1493	
480 minute summer	S9/1	8	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0112	
480 minute summer	S10T	456	10.088	0.888	29.9	128.8228	0.0000	SURCHARGED	8.000	S10	-24.1	-1.368	-1.357	0.0538	
480 minute summer	S11/1	8	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0141	
480 minute summer	S12T	456	10.085	1.005	29.3	133.4822	0.0000	SURCHARGED	10.000	S12	-23.8	1.576	-0.348	0.0459	
480 minute summer	S13/1	448	10.086	0.086	0.3	0.0137	0.0000	OK	11.000	S13	-0.3	-0.038	-0.029	0.0458	
480 minute summer	S13/2	448	10.086	0.086	0.2	0.0137	0.0000	OK	12.000	S13	-0.2	-0.025	-0.024	0.0413	
480 minute summer	S13	464	10.087	2.038	19.4	5.3098	0.0000	SURCHARGED	1.009	S14	9.7	0.362	0.061	3.0305	
480 minute summer	S14	448	10.086	2.084	9.8	3.2318	0.0000	SURCHARGED	1.010	S15	10.2	0.229	0.064	1.6884	
480 minute summer	S15	448	10.086	2.110	10.2	3.7278	0.0000	OK	Hydro-Brake®		9.2				350.0

Results for 100 year +40% 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 99.83%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	S5T	352	10.919	0.379	10.8	55.5459	0.0000	SURCHARGED	1.000	S5	8.8	0.640	0.218	0.0363	
480 minute winter	S5	352	10.918	0.483	8.8	0.8527	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
480 minute winter	S6	456	10.299	0.579	7.0	0.9480	0.0000	SURCHARGED	1.002	S7	7.0	0.633	0.175	0.7084	
480 minute winter	S7	456	10.298	0.683	11.3	1.2059	0.0000	SURCHARGED	1.003	S8	11.3	0.839	0.283	0.7903	
480 minute winter	S8	464	10.297	0.874	16.1	0.9881	0.0000	SURCHARGED	1.004	S9	15.0	0.801	0.213	1.3970	
480 minute winter	S9	464	10.296	0.954	21.8	2.0346	0.0000	SURCHARGED	1.005	S10	21.6	0.844	0.191	2.1925	
480 minute winter	S10	464	10.295	1.276	23.3	2.1175	0.0000	SURCHARGED	1.006	S11	16.7	0.904	0.237	1.3990	
480 minute winter	S11	456	10.295	1.357	20.5	3.1664	0.0000	SURCHARGED	1.007	S12	20.4	1.178	0.173	2.4206	
480 minute winter	S12	464	10.294	2.244	24.1	3.8357	0.0000	SURCHARGED	1.008	S13	12.7	0.056	0.100	55.8558	
480 minute winter	S6/1	8	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
480 minute winter	S6/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
480 minute winter	S7/1	8	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
480 minute winter	S7/2	8	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
480 minute winter	S8T	464	10.297	0.639	4.7	12.6916	0.0000	SURCHARGED	6.000	S8	4.8	0.811	0.270	0.1493	
480 minute winter	S9/1	464	10.296	0.191	0.1	0.0304	0.0000	SURCHARGED	7.000	S9	-0.1	-0.012	-0.011	0.0322	
480 minute winter	S10T	464	10.295	1.095	22.0	158.9673	0.0000	SURCHARGED	8.000	S10	-17.7	-1.008	-0.999	0.0538	
480 minute winter	S11/1	464	10.295	0.095	0.2	0.0151	0.0000	OK	9.000	S11	-0.2	-0.029	-0.016	0.0307	
480 minute winter	S12T	464	10.293	1.213	22.1	161.0371	0.0000	SURCHARGED	10.000	S12	-19.3	1.580	-0.282	0.0459	
480 minute winter	S13/1	456	10.293	0.293	0.1	0.0467	0.0000	SURCHARGED	11.000	S13	-0.1	-0.023	-0.016	0.0478	
480 minute winter	S13/2	464	10.294	0.294	0.1	0.0467	0.0000	SURCHARGED	12.000	S13	-0.1	-0.020	-0.017	0.0431	
480 minute winter	S13	456	10.294	2.245	18.7	5.8504	0.0000	SURCHARGED	1.009	S14	9.9	0.372	0.062	3.0305	
480 minute winter	S14	464	10.294	2.292	10.5	3.5545	0.0000	FLOOD RISK	1.010	S15	10.3	0.240	0.065	1.6884	
480 minute winter	S15	464	10.293	2.317	10.3	4.0933	0.0000	OK	Hydro-Brake®		9.6				361.6

Results for 100 year +40% 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 99.84%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	S5T	405	10.852	0.312	11.8	45.6858	0.0000	SURCHARGED	1.000	S5	8.2	0.597	0.202	0.0363	
600 minute summer	S5	405	10.851	0.416	8.2	0.7343	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
600 minute summer	S6	510	10.073	0.353	7.4	0.5775	0.0000	SURCHARGED	1.002	S7	7.4	0.639	0.187	0.7084	
600 minute summer	S7	510	10.072	0.457	12.1	0.8064	0.0000	SURCHARGED	1.003	S8	12.1	0.863	0.304	0.7903	
600 minute summer	S8	525	10.070	0.647	17.3	0.7321	0.0000	SURCHARGED	1.004	S9	16.7	0.811	0.236	1.3970	
600 minute summer	S9	525	10.070	0.728	24.2	1.5521	0.0000	SURCHARGED	1.005	S10	23.5	0.845	0.207	2.1925	
600 minute summer	S10	510	10.069	1.050	25.4	1.7412	0.0000	SURCHARGED	1.006	S11	16.4	0.899	0.232	1.3990	
600 minute summer	S11	540	10.068	1.130	20.1	2.6365	0.0000	SURCHARGED	1.007	S12	20.0	1.163	0.169	2.4206	
600 minute summer	S12	510	10.065	2.015	23.6	3.4439	0.0000	SURCHARGED	1.008	S13	12.6	0.052	0.100	55.8558	
600 minute summer	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
600 minute summer	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
600 minute summer	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
600 minute summer	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
600 minute summer	S8T	510	10.070	0.412	5.1	8.1921	0.0000	SURCHARGED	6.000	S8	5.3	0.834	0.297	0.1493	
600 minute summer	S9/1	15	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0074	
600 minute summer	S10T	510	10.069	0.869	24.6	126.0891	0.0000	SURCHARGED	8.000	S10	-19.9	-1.132	-1.122	0.0538	
600 minute summer	S11/1	15	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0108	
600 minute summer	S12T	510	10.067	0.987	23.5	130.9929	0.0000	SURCHARGED	10.000	S12	-20.6	1.491	-0.301	0.0459	
600 minute summer	S13/1	525	10.065	0.065	0.2	0.0103	0.0000	OK	11.000	S13	0.2	0.026	0.021	0.0404	
600 minute summer	S13/2	510	10.066	0.066	0.1	0.0105	0.0000	OK	12.000	S13	0.2	0.025	0.019	0.0367	
600 minute summer	S13	540	10.067	2.018	18.5	5.2589	0.0000	SURCHARGED	1.009	S14	9.4	0.338	0.059	3.0305	
600 minute summer	S14	510	10.065	2.063	9.6	3.2000	0.0000	SURCHARGED	1.010	S15	10.5	0.227	0.066	1.6884	
600 minute summer	S15	525	10.066	2.090	10.5	3.6925	0.0000	OK	Hydro-Brake®		9.1				399.2

Results for 100 year +40% 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 99.84%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	S5T	435	10.887	0.347	9.0	50.8336	0.0000	SURCHARGED	1.000	S5	7.1	0.565	0.175	0.0363	
600 minute winter	S5	435	10.886	0.451	7.1	0.7961	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
600 minute winter	S6	570	10.277	0.557	6.4	0.9113	0.0000	SURCHARGED	1.002	S7	6.4	0.626	0.161	0.7084	
600 minute winter	S7	570	10.276	0.661	10.0	1.1671	0.0000	SURCHARGED	1.003	S8	10.0	0.816	0.252	0.7903	
600 minute winter	S8	570	10.275	0.852	13.9	0.9636	0.0000	SURCHARGED	1.004	S9	13.1	0.784	0.185	1.3970	
600 minute winter	S9	570	10.275	0.933	18.8	1.9885	0.0000	SURCHARGED	1.005	S10	18.1	0.821	0.160	2.1925	
600 minute winter	S10	570	10.274	1.254	19.5	2.0812	0.0000	SURCHARGED	1.006	S11	15.1	0.880	0.214	1.3990	
600 minute winter	S11	570	10.273	1.335	18.4	3.1159	0.0000	SURCHARGED	1.007	S12	18.4	1.161	0.155	2.4206	
600 minute winter	S12	570	10.269	2.219	21.7	3.7922	0.0000	SURCHARGED	1.008	S13	12.5	0.053	0.099	55.8558	
600 minute winter	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
600 minute winter	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
600 minute winter	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
600 minute winter	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
600 minute winter	S8T	570	10.275	0.617	3.9	12.2571	0.0000	SURCHARGED	6.000	S8	3.9	0.770	0.219	0.1493	
600 minute winter	S9/1	570	10.275	0.170	0.1	0.0270	0.0000	SURCHARGED	7.000	S9	0.1	0.015	0.014	0.0322	
600 minute winter	S10T	570	10.273	1.073	18.0	155.7789	0.0000	SURCHARGED	8.000	S10	-14.4	-0.821	-0.814	0.0538	
600 minute winter	S11/1	570	10.273	0.073	0.2	0.0116	0.0000	OK	9.000	S11	-0.2	-0.029	-0.014	0.0277	
600 minute winter	S12T	570	10.271	1.191	20.8	158.1177	0.0000	SURCHARGED	10.000	S12	-18.5	1.508	-0.270	0.0459	
600 minute winter	S13/1	570	10.272	0.272	0.1	0.0433	0.0000	SURCHARGED	11.000	S13	0.2	0.025	0.021	0.0478	
600 minute winter	S13/2	570	10.272	0.272	0.1	0.0433	0.0000	SURCHARGED	12.000	S13	0.2	0.020	0.020	0.0431	
600 minute winter	S13	570	10.272	2.223	17.7	5.7941	0.0000	SURCHARGED	1.009	S14	9.6	0.357	0.060	3.0305	
600 minute winter	S14	570	10.272	2.270	9.8	3.5205	0.0000	FLOOD RISK	1.010	S15	9.8	0.220	0.061	1.6884	
600 minute winter	S15	570	10.271	2.295	9.8	4.0551	0.0000	OK	Hydro-Brake®		9.5				414.5

Results for 100 year +40% 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 99.85%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	S5T	465	10.831	0.291	10.5	42.6351	0.0000	SURCHARGED	1.000	S5	5.0	0.444	0.124	0.0363	
720 minute summer	S5	465	10.830	0.395	5.0	0.6977	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
720 minute summer	S6	585	10.055	0.335	6.9	0.5479	0.0000	SURCHARGED	1.002	S7	6.9	0.631	0.174	0.7084	
720 minute summer	S7	585	10.054	0.439	11.1	0.7745	0.0000	SURCHARGED	1.003	S8	11.1	0.845	0.279	0.7903	
720 minute summer	S8	585	10.052	0.629	15.6	0.7117	0.0000	SURCHARGED	1.004	S9	15.3	0.800	0.217	1.3970	
720 minute summer	S9	585	10.052	0.710	21.9	1.5133	0.0000	SURCHARGED	1.005	S10	20.6	0.844	0.182	2.1925	
720 minute summer	S10	585	10.051	1.032	22.2	1.7119	0.0000	SURCHARGED	1.006	S11	16.6	0.903	0.235	1.3990	
720 minute summer	S11	585	10.050	1.112	20.3	2.5958	0.0000	SURCHARGED	1.007	S12	20.2	1.183	0.171	2.4206	
720 minute summer	S12	600	10.050	2.000	23.8	3.4181	0.0000	SURCHARGED	1.008	S13	12.9	0.053	0.102	55.8558	
720 minute summer	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
720 minute summer	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
720 minute summer	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
720 minute summer	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
720 minute summer	S8T	585	10.052	0.394	4.5	7.8316	0.0000	SURCHARGED	6.000	S8	4.5	0.808	0.256	0.1493	
720 minute summer	S9/1	15	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0038	
720 minute summer	S10T	585	10.051	0.851	21.3	123.4776	0.0000	SURCHARGED	8.000	S10	-17.1	-0.972	-0.964	0.0538	
720 minute summer	S11/1	15	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0074	
720 minute summer	S12T	585	10.049	0.969	21.3	128.5780	0.0000	SURCHARGED	10.000	S12	-18.6	1.538	-0.272	0.0459	
720 minute summer	S13/1	585	10.050	0.050	0.1	0.0079	0.0000	OK	11.000	S13	-0.1	-0.021	-0.015	0.0357	
720 minute summer	S13/2	585	10.050	0.050	0.2	0.0079	0.0000	OK	12.000	S13	-0.2	-0.030	-0.025	0.0322	
720 minute summer	S13	585	10.049	2.000	18.8	5.2114	0.0000	SURCHARGED	1.009	S14	9.3	0.341	0.059	3.0305	
720 minute summer	S14	585	10.049	2.047	9.4	3.1742	0.0000	SURCHARGED	1.010	S15	9.8	0.215	0.062	1.6884	
720 minute summer	S15	585	10.049	2.073	9.8	3.6625	0.0000	OK	Hydro-Brake®		9.1				448.4

Results for 100 year +40% 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 99.84%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	S5T	510	10.853	0.313	7.9	45.9071	0.0000	SURCHARGED	1.000	S5	8.4	0.554	0.209	0.0363	
720 minute winter	S5	510	10.852	0.417	8.4	0.7370	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
720 minute winter	S6	660	10.250	0.530	6.0	0.8668	0.0000	SURCHARGED	1.002	S7	6.0	0.622	0.152	0.7084	
720 minute winter	S7	660	10.249	0.634	9.1	1.1183	0.0000	SURCHARGED	1.003	S8	9.1	0.798	0.229	0.7903	
720 minute winter	S8	660	10.247	0.824	12.5	0.9318	0.0000	SURCHARGED	1.004	S9	11.8	0.761	0.167	1.3970	
720 minute winter	S9	660	10.246	0.904	16.8	1.9279	0.0000	SURCHARGED	1.005	S10	16.1	0.802	0.142	2.1925	
720 minute winter	S10	660	10.245	1.226	17.3	2.0345	0.0000	SURCHARGED	1.006	S11	13.8	0.861	0.196	1.3990	
720 minute winter	S11	660	10.244	1.306	16.7	3.0489	0.0000	SURCHARGED	1.007	S12	16.7	1.139	0.141	2.4206	
720 minute winter	S12	645	10.244	2.194	19.6	3.7491	0.0000	SURCHARGED	1.008	S13	12.0	0.052	0.094	55.8558	
720 minute winter	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
720 minute winter	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
720 minute winter	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
720 minute winter	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
720 minute winter	S8T	660	10.247	0.589	3.4	11.7057	0.0000	SURCHARGED	6.000	S8	3.4	0.748	0.191	0.1493	
720 minute winter	S9/1	660	10.246	0.141	0.1	0.0225	0.0000	SURCHARGED	7.000	S9	-0.1	-0.021	-0.008	0.0322	
720 minute winter	S10T	660	10.246	1.046	15.4	151.7332	0.0000	SURCHARGED	8.000	S10	-12.3	-0.698	-0.692	0.0538	
720 minute winter	S11/1	675	10.244	0.044	0.1	0.0070	0.0000	OK	9.000	S11	0.2	0.025	0.012	0.0221	
720 minute winter	S12T	660	10.243	1.163	17.3	154.4332	0.0000	SURCHARGED	10.000	S12	-15.0	1.470	-0.219	0.0459	
720 minute winter	S13/1	645	10.243	0.243	0.2	0.0387	0.0000	SURCHARGED	11.000	S13	-0.2	-0.024	-0.020	0.0478	
720 minute winter	S13/2	645	10.243	0.243	0.2	0.0387	0.0000	SURCHARGED	12.000	S13	-0.2	-0.023	-0.023	0.0431	
720 minute winter	S13	660	10.244	2.195	16.6	5.7191	0.0000	SURCHARGED	1.009	S14	10.0	0.356	0.062	3.0305	
720 minute winter	S14	645	10.242	2.240	10.1	3.4742	0.0000	FLOOD RISK	1.010	S15	10.0	0.225	0.063	1.6884	
720 minute winter	S15	645	10.242	2.266	10.0	4.0045	0.0000	OK	Hydro-Brake®		9.5				467.4

Results for 100 year +40% 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 99.85%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	S5T	600	10.783	0.243	8.5	35.6112	0.0000	SURCHARGED	1.000	S5	8.0	0.555	0.199	0.0363	
960 minute summer	S5	600	10.782	0.347	8.0	0.6127	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
960 minute summer	S6	720	10.030	0.310	6.4	0.5075	0.0000	SURCHARGED	1.002	S7	6.4	0.616	0.160	0.7084	
960 minute summer	S7	720	10.029	0.414	9.8	0.7311	0.0000	SURCHARGED	1.003	S8	9.8	0.816	0.248	0.7903	
960 minute summer	S8	720	10.028	0.605	13.5	0.6840	0.0000	SURCHARGED	1.004	S9	13.3	0.777	0.189	1.3970	
960 minute summer	S9	720	10.027	0.685	18.7	1.4611	0.0000	SURCHARGED	1.005	S10	17.5	0.808	0.155	2.1925	
960 minute summer	S10	720	10.026	1.007	18.8	1.6708	0.0000	SURCHARGED	1.006	S11	14.4	0.871	0.204	1.3990	
960 minute summer	S11	705	10.025	1.087	17.4	2.5374	0.0000	SURCHARGED	1.007	S12	17.5	1.152	0.148	2.4206	
960 minute summer	S12	720	10.025	1.975	20.4	3.3749	0.0000	SURCHARGED	1.008	S13	12.1	0.053	0.096	55.8558	
960 minute summer	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
960 minute summer	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
960 minute summer	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
960 minute summer	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
960 minute summer	S8T	720	10.028	0.370	3.7	7.3416	0.0000	SURCHARGED	6.000	S8	3.7	0.773	0.208	0.1493	
960 minute summer	S9/1	15	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0002	
960 minute summer	S10T	720	10.026	0.826	17.1	119.8866	0.0000	SURCHARGED	8.000	S10	-13.7	-0.776	-0.770	0.0538	
960 minute summer	S11/1	15	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0027	
960 minute summer	S12T	720	10.024	0.944	18.0	125.3051	0.0000	SURCHARGED	10.000	S12	-15.9	1.497	-0.233	0.0459	
960 minute summer	S13/1	735	10.024	0.024	0.1	0.0039	0.0000	OK	11.000	S13	-0.1	0.019	-0.011	0.0284	
960 minute summer	S13/2	735	10.024	0.024	0.1	0.0039	0.0000	OK	12.000	S13	0.1	0.023	0.016	0.0257	
960 minute summer	S13	735	10.024	1.975	16.9	5.1475	0.0000	SURCHARGED	1.009	S14	9.7	0.338	0.060	3.0305	
960 minute summer	S14	735	10.023	2.021	9.8	3.1352	0.0000	SURCHARGED	1.010	S15	10.1	0.217	0.063	1.6884	
960 minute summer	S15	705	10.024	2.048	10.1	3.6188	0.0000	OK	Hydro-Brake®		9.1				539.0

Results for 100 year +40% 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 99.86%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	S5T	645	10.777	0.237	7.5	34.6858	0.0000	SURCHARGED	1.000	S5	6.6	0.580	0.163	0.0363	
960 minute winter	S5	645	10.775	0.340	6.6	0.6016	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
960 minute winter	S6	750	10.215	0.495	5.6	0.8099	0.0000	SURCHARGED	1.002	S7	5.6	0.617	0.140	0.7084	
960 minute winter	S7	750	10.214	0.599	8.1	1.0569	0.0000	SURCHARGED	1.003	S8	8.1	0.774	0.203	0.7903	
960 minute winter	S8	750	10.212	0.789	10.8	0.8925	0.0000	SURCHARGED	1.004	S9	10.4	0.745	0.148	1.3970	
960 minute winter	S9	750	10.212	0.870	14.3	1.8540	0.0000	SURCHARGED	1.005	S10	14.1	0.780	0.124	2.1925	
960 minute winter	S10	750	10.211	1.192	15.1	1.9770	0.0000	SURCHARGED	1.006	S11	12.8	0.844	0.182	1.3990	
960 minute winter	S11	765	10.210	1.272	15.4	2.9682	0.0000	SURCHARGED	1.007	S12	15.4	1.105	0.131	2.4206	
960 minute winter	S12	750	10.210	2.160	18.1	3.6916	0.0000	SURCHARGED	1.008	S13	10.7	0.052	0.084	55.8558	
960 minute winter	S6/1	15	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
960 minute winter	S6/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
960 minute winter	S7/1	15	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
960 minute winter	S7/2	15	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
960 minute winter	S8T	750	10.212	0.554	2.7	11.0150	0.0000	SURCHARGED	6.000	S8	2.7	0.710	0.152	0.1493	
960 minute winter	S9/1	750	10.211	0.106	0.1	0.0169	0.0000	SURCHARGED	7.000	S9	0.1	0.013	0.007	0.0322	
960 minute winter	S10T	750	10.211	1.011	12.1	146.6777	0.0000	SURCHARGED	8.000	S10	-9.7	0.577	-0.547	0.0538	
960 minute winter	S11/1	765	10.210	0.010	0.1	0.0016	0.0000	OK	9.000	S11	-0.1	-0.019	-0.007	0.0163	
960 minute winter	S12T	750	10.208	1.128	14.5	149.7849	0.0000	SURCHARGED	10.000	S12	-12.6	1.464	-0.183	0.0459	
960 minute winter	S13/1	750	10.209	0.209	0.1	0.0332	0.0000	SURCHARGED	11.000	S13	0.1	0.019	0.016	0.0478	
960 minute winter	S13/2	750	10.209	0.209	0.1	0.0332	0.0000	SURCHARGED	12.000	S13	-0.1	0.017	-0.016	0.0431	
960 minute winter	S13	765	10.208	2.159	14.6	5.6264	0.0000	SURCHARGED	1.009	S14	9.9	0.339	0.062	3.0305	
960 minute winter	S14	750	10.209	2.207	10.0	3.4229	0.0000	SURCHARGED	1.010	S15	10.1	0.216	0.063	1.6884	
960 minute winter	S15	750	10.208	2.232	10.1	3.9437	0.0000	OK	Hydro-Brake®		9.4				567.0

Results for 100 year +40% 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 99.93%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	S5T	840	10.699	0.159	6.1	23.2833	0.0000	SURCHARGED	1.000	S5	8.1	0.530	0.200	0.0363	
1440 minute summer	S5	840	10.698	0.263	8.1	0.4639	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
1440 minute summer	S6	990	9.966	0.246	5.5	0.4030	0.0000	SURCHARGED	1.002	S7	5.5	0.609	0.138	0.7084	
1440 minute summer	S7	990	9.965	0.350	7.9	0.6180	0.0000	SURCHARGED	1.003	S8	7.9	0.771	0.198	0.7903	
1440 minute summer	S8	990	9.963	0.540	10.5	0.6112	0.0000	SURCHARGED	1.004	S9	10.4	0.750	0.148	1.3970	
1440 minute summer	S9	990	9.963	0.621	14.3	1.3238	0.0000	SURCHARGED	1.005	S10	14.3	0.784	0.126	2.1925	
1440 minute summer	S10	990	9.962	0.943	15.3	1.5644	0.0000	SURCHARGED	1.006	S11	13.1	0.849	0.185	1.3990	
1440 minute summer	S11	990	9.961	1.023	15.7	2.3880	0.0000	SURCHARGED	1.007	S12	15.7	1.101	0.133	2.4206	
1440 minute summer	S12	1020	9.962	1.912	18.3	3.2671	0.0000	SURCHARGED	1.008	S13	11.2	0.052	0.088	55.8558	
1440 minute summer	S6/1	30	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
1440 minute summer	S6/2	30	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
1440 minute summer	S7/1	30	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
1440 minute summer	S7/2	30	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
1440 minute summer	S8T	990	9.963	0.305	2.6	6.0655	0.0000	SURCHARGED	6.000	S8	2.6	0.703	0.146	0.1493	
1440 minute summer	S9/1	30	10.105	0.000	0.0	0.0000	0.0000	OK	7.000	S9	0.0	0.000	0.000	0.0000	
1440 minute summer	S10T	990	9.962	0.762	12.5	110.5604	0.0000	SURCHARGED	8.000	S10	-10.1	0.581	-0.568	0.0538	
1440 minute summer	S11/1	30	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0000	
1440 minute summer	S12T	990	9.960	0.880	12.6	116.7498	0.0000	SURCHARGED	10.000	S12	-10.7	1.433	-0.157	0.0459	
1440 minute summer	S13/1	30	10.000	0.000	0.0	0.0000	0.0000	OK	11.000	S13	0.0	0.000	0.000	0.0239	
1440 minute summer	S13/2	30	10.000	0.000	0.0	0.0000	0.0000	OK	12.000	S13	0.0	0.000	0.000	0.0115	
1440 minute summer	S13	990	9.959	1.910	15.4	4.9787	0.0000	SURCHARGED	1.009	S14	9.0	0.325	0.057	3.0305	
1440 minute summer	S14	1020	9.959	1.957	9.1	3.0360	0.0000	SURCHARGED	1.010	S15	9.7	0.212	0.061	1.6884	
1440 minute summer	S15	990	9.959	1.983	9.7	3.5041	0.0000	OK	Hydro-Brake®		8.9				693.3

Results for 100 year +40% 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 99.89%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	S5T	870	10.655	0.115	5.3	16.7463	0.0000	OK	1.000	S5	7.4	0.481	0.183	0.0331	
1440 minute winter	S5	870	10.654	0.219	7.4	0.3864	0.0000	SURCHARGED	Hydro-Brake®	S6	3.4				
1440 minute winter	S6	1050	10.128	0.408	5.0	0.6674	0.0000	SURCHARGED	1.002	S7	5.0	0.611	0.126	0.7084	
1440 minute winter	S7	1050	10.127	0.512	6.8	0.9032	0.0000	SURCHARGED	1.003	S8	6.8	0.741	0.171	0.7903	
1440 minute winter	S8	1050	10.125	0.702	8.9	0.7936	0.0000	SURCHARGED	1.004	S9	8.6	0.713	0.122	1.3970	
1440 minute winter	S9	1080	10.124	0.782	11.4	1.6678	0.0000	SURCHARGED	1.005	S10	11.1	0.757	0.098	2.1925	
1440 minute winter	S10	1080	10.124	1.105	11.8	1.8327	0.0000	SURCHARGED	1.006	S11	11.3	0.816	0.159	1.3990	
1440 minute winter	S11	1080	10.123	1.185	13.4	2.7659	0.0000	SURCHARGED	1.007	S12	13.3	1.072	0.113	2.4206	
1440 minute winter	S12	1080	10.122	2.072	15.5	3.5403	0.0000	SURCHARGED	1.008	S13	10.2	0.053	0.080	55.8558	
1440 minute winter	S6/1	30	10.725	0.000	0.0	0.0000	0.0000	OK	3.000	S6	0.0	0.000	0.000	0.0000	
1440 minute winter	S6/2	30	10.500	0.000	0.0	0.0000	0.0000	OK	2.000	S6	0.0	0.000	0.000	0.0000	
1440 minute winter	S7/1	30	10.500	0.000	0.0	0.0000	0.0000	OK	4.000	S7	0.0	0.000	0.000	0.0000	
1440 minute winter	S7/2	30	10.500	0.000	0.0	0.0000	0.0000	OK	5.000	S7	0.0	0.000	0.000	0.0000	
1440 minute winter	S8T	1050	10.125	0.467	2.0	9.2728	0.0000	SURCHARGED	6.000	S8	2.1	0.653	0.117	0.1493	
1440 minute winter	S9/1	1080	10.124	0.019	0.1	0.0031	0.0000	OK	7.000	S9	-0.1	-0.018	-0.008	0.0183	
1440 minute winter	S10T	1080	10.124	0.924	9.2	134.0820	0.0000	SURCHARGED	8.000	S10	-7.5	0.557	-0.421	0.0538	
1440 minute winter	S11/1	30	10.200	0.000	0.0	0.0000	0.0000	OK	9.000	S11	0.0	0.000	0.000	0.0155	
1440 minute winter	S12T	1080	10.122	1.042	12.1	138.3027	0.0000	SURCHARGED	10.000	S12	-10.6	1.401	-0.155	0.0459	
1440 minute winter	S13/1	1080	10.121	0.121	0.1	0.0193	0.0000	SURCHARGED	11.000	S13	0.2	0.025	0.021	0.0478	
1440 minute winter	S13/2	1080	10.122	0.122	0.1	0.0193	0.0000	SURCHARGED	12.000	S13	0.2	0.023	0.023	0.0431	
1440 minute winter	S13	1080	10.122	2.073	13.3	5.4011	0.0000	SURCHARGED	1.009	S14	9.2	0.329	0.058	3.0305	
1440 minute winter	S14	1080	10.121	2.119	9.3	3.2871	0.0000	SURCHARGED	1.010	S15	9.9	0.214	0.062	1.6884	
1440 minute winter	S15	1080	10.121	2.145	9.9	3.7906	0.0000	OK	Hydro-Brake®		9.2				737.2