



Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	250.0
Additional Flow (%)	0	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	0.350	Preferred Cover Depth (m)	0.600
CV	0.750	Include Intermediate Ground	x
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.120	5.00	9.722	1350	493658.343	104199.609	1.246
2	0.020	5.00	9.647	1350	493690.412	104199.617	1.272
3	0.000		9.477	1350	493711.818	104199.819	1.169
4	0.052	5.00	9.452	1350	493722.945	104196.895	1.180
5	0.097	5.00	9.551	1350	493725.885	104187.618	1.310
6	0.051	5.00	9.799	1350	493725.806	104157.287	1.653
7	0.014	5.00	9.731	1350	493735.347	104125.109	1.691
8	0.000		9.500	1350	493730.627	104118.311	1.625
9	0.036	5.00	9.835	1200	493658.975	104147.455	1.463
13	0.022	5.00	9.810	1200	493717.063	104147.455	1.510
10	0.053	5.00	9.658	1200	493697.079	104147.455	1.426
14	0.100	5.00	9.966	1200	493673.638	104075.144	1.626
15	0.024	5.00	9.852	1200	493671.906	104105.399	1.607
11	0.000		9.875	1200	493696.950	104121.110	1.808
12	0.000		9.500	1200	493713.471	104114.923	1.625
16	0.075	5.00	10.065	1350	493688.492	104076.197	1.865
17	0.019	5.00	9.879	1350	493720.562	104076.084	1.780
20	0.055	5.00	9.448	1200	493769.894	104072.474	1.098
21	0.022	5.00	9.587	1200	493745.746	104073.312	1.319
18	0.010	5.00	9.731	1350	493733.420	104082.467	1.677
19	0.000		9.500	1350	493725.461	104093.496	1.625
22	0.025	5.00	9.500	1350	493732.097	104106.511	1.710
23	0.065	5.00	9.482	1350	493745.090	104106.067	1.742
24	0.020	5.00	9.079	1350	493778.105	104104.940	1.539
25	0.000		9.039	1350	493782.059	104107.757	1.539

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	32.069	0.600	8.476	8.375	0.101	318.0	375	5.53	62.9
1.001	2	3	21.407	0.600	8.375	8.308	0.067	318.0	375	5.88	61.3
1.002	3	4	11.505	0.600	8.308	8.272	0.036	318.0	375	6.07	60.4
1.003	4	5	9.732	0.600	8.272	8.241	0.031	318.0	375	6.23	59.8
1.004	5	6	30.331	0.600	8.241	8.146	0.095	318.0	375	6.73	57.7
1.005	6	7	33.563	0.600	8.146	8.040	0.106	318.0	375	7.29	55.7
2.000	9	10	38.104	0.600	8.372	8.242	0.130	294.0	225	5.84	61.5
3.000	13	10	19.984	0.600	8.300	8.232	0.068	294.0	225	5.44	63.4
2.001	10	11	26.345	0.600	8.232	8.142	0.090	294.0	225	6.42	59.0
4.000	14	15	30.305	0.600	8.340	8.245	0.095	318.0	300	5.58	62.7
4.001	15	11	29.564	0.600	8.245	8.152	0.093	318.0	300	6.14	60.2
5.000	16	17	32.070	0.600	8.200	8.099	0.101	318.0	375	5.53	62.9
5.001	17	18	14.355	0.600	8.099	8.054	0.045	318.0	375	5.77	61.8
6.000	20	21	24.163	0.600	8.350	8.268	0.082	294.0	225	5.53	62.9
6.001	21	18	15.354	0.600	8.268	8.216	0.052	294.0	225	5.87	61.3
1.008	22	23	13.001	0.600	7.790	7.740	0.050	260.0	450	5.17	64.7
1.009	23	24	33.034	0.600	7.740	7.540	0.200	165.2	450	5.52	63.0
1.010	24	25	4.855	0.600	7.540	7.500	0.040	121.4	450	5.57	62.8
1.006	7	8	8.276	0.600	8.040	8.014	0.026	318.3	375	7.42	55.2
2.002	11	12	17.641	0.600	8.067	8.007	0.060	294.0	300	6.74	57.7
5.002	18	19	13.601	0.600	8.054	8.012	0.042	323.8	375	6.10	60.3

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	1.010	111.6	20.5	0.871	0.897	0.120	0.0	108	0.775
1.001	1.010	111.6	23.3	0.897	0.794	0.140	0.0	115	0.802
1.002	1.010	111.6	22.9	0.794	0.805	0.140	0.0	115	0.800
1.003	1.010	111.6	31.1	0.805	0.935	0.192	0.0	135	0.870
1.004	1.010	111.6	45.2	0.935	1.278	0.289	0.0	166	0.959
1.005	1.010	111.6	51.3	1.278	1.316	0.340	0.0	178	0.990
2.000	0.757	30.1	6.0	1.238	1.191	0.036	0.0	68	0.594
3.000	0.757	30.1	3.8	1.285	1.201	0.022	0.0	54	0.522
2.001	0.757	30.1	17.7	1.201	1.508	0.111	0.0	124	0.788
4.000	0.876	61.9	17.0	1.326	1.307	0.100	0.0	107	0.750
4.001	0.876	61.9	20.2	1.307	1.423	0.124	0.0	117	0.785
5.000	1.010	111.6	12.8	1.490	1.405	0.075	0.0	85	0.680
5.001	1.010	111.6	15.7	1.405	1.302	0.094	0.0	95	0.722
6.000	0.757	30.1	9.4	0.873	1.094	0.055	0.0	86	0.669
6.001	0.757	30.1	12.8	1.094	1.290	0.077	0.0	102	0.727
1.008	1.256	199.7	4.4	1.260	1.292	0.025	0.0	45	0.518
1.009	1.579	251.1	15.4	1.292	1.089	0.090	0.0	74	0.885
1.010	1.844	293.3	18.7	1.089	1.089	0.110	0.0	76	1.050
1.006	1.010	111.5	52.9	1.316	1.111	0.354	0.0	182	0.998
2.002	0.912	64.4	36.7	1.508	1.193	0.235	0.0	163	0.941
5.002	1.001	110.6	29.6	1.302	1.113	0.181	0.0	132	0.853

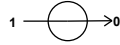


Pipeline Schedule

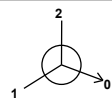
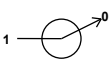
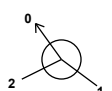
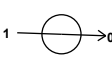
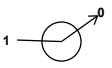
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	32.069	318.0	375	Circular_Default Sewer Type	9.722	8.476	0.871	9.647	8.375	0.897
1.001	21.407	318.0	375	Circular_Default Sewer Type	9.647	8.375	0.897	9.477	8.308	0.794
1.002	11.505	318.0	375	Circular_Default Sewer Type	9.477	8.308	0.794	9.452	8.272	0.805
1.003	9.732	318.0	375	Circular_Default Sewer Type	9.452	8.272	0.805	9.551	8.241	0.935
1.004	30.331	318.0	375	Circular_Default Sewer Type	9.551	8.241	0.935	9.799	8.146	1.278
1.005	33.563	318.0	375	Circular_Default Sewer Type	9.799	8.146	1.278	9.731	8.040	1.316
2.000	38.104	294.0	225	Circular_Default Sewer Type	9.835	8.372	1.238	9.658	8.242	1.191
3.000	19.984	294.0	225	Circular_Default Sewer Type	9.810	8.300	1.285	9.658	8.232	1.201
2.001	26.345	294.0	225	Circular_Default Sewer Type	9.658	8.232	1.201	9.875	8.142	1.508
4.000	30.305	318.0	300	Circular_Default Sewer Type	9.966	8.340	1.326	9.852	8.245	1.307
4.001	29.564	318.0	300	Circular_Default Sewer Type	9.852	8.245	1.307	9.875	8.152	1.423
5.000	32.070	318.0	375	Circular_Default Sewer Type	10.065	8.200	1.490	9.879	8.099	1.405
5.001	14.355	318.0	375	Circular_Default Sewer Type	9.879	8.099	1.405	9.731	8.054	1.302
6.000	24.163	294.0	225	Circular_Default Sewer Type	9.448	8.350	0.873	9.587	8.268	1.094
6.001	15.354	294.0	225	Circular_Default Sewer Type	9.587	8.268	1.094	9.731	8.216	1.290
1.008	13.001	260.0	450	Circular_Default Sewer Type	9.500	7.790	1.260	9.482	7.740	1.292
1.009	33.034	165.2	450	Circular_Default Sewer Type	9.482	7.740	1.292	9.079	7.540	1.089
1.010	4.855	121.4	450	Circular_Default Sewer Type	9.079	7.540	1.089	9.039	7.500	1.089
1.006	8.276	318.3	375	Circular_Default Sewer Type	9.731	8.040	1.316	9.500	8.014	1.111
2.002	17.641	294.0	300	Circular_Default Sewer Type	9.875	8.067	1.508	9.500	8.007	1.193
5.002	13.601	323.8	375	Circular_Default Sewer Type	9.731	8.054	1.302	9.500	8.012	1.113

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1350	Manhole	Adoptable	2	1350	Manhole	Adoptable
1.001	2	1350	Manhole	Adoptable	3	1350	Manhole	Adoptable
1.002	3	1350	Manhole	Adoptable	4	1350	Manhole	Adoptable
1.003	4	1350	Manhole	Adoptable	5	1350	Manhole	Adoptable
1.004	5	1350	Manhole	Adoptable	6	1350	Manhole	Adoptable
1.005	6	1350	Manhole	Adoptable	7	1350	Manhole	Adoptable
2.000	9	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
3.000	13	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
2.001	10	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
4.000	14	1200	Manhole	Adoptable	15	1200	Manhole	Adoptable
4.001	15	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
5.000	16	1350	Manhole	Adoptable	17	1350	Manhole	Adoptable
5.001	17	1350	Manhole	Adoptable	18	1350	Manhole	Adoptable
6.000	20	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
6.001	21	1200	Manhole	Adoptable	18	1350	Manhole	Adoptable
1.008	22	1350	Manhole	Adoptable	23	1350	Manhole	Adoptable
1.009	23	1350	Manhole	Adoptable	24	1350	Manhole	Adoptable
1.010	24	1350	Manhole	Adoptable	25	1350	Manhole	Adoptable
1.006	7	1350	Manhole	Adoptable	8	1350	Manhole	Adoptable
2.002	11	1200	Manhole	Adoptable	12	1200	Manhole	Adoptable
5.002	18	1350	Manhole	Adoptable	19	1350	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	493658.343	104199.609	9.722	1.246	1350					
						0	1.000	8.476	375	
2	493690.412	104199.617	9.647	1.272	1350		1	1.000	8.375	375
						0	1.001	8.375	375	
3	493711.818	104199.819	9.477	1.169	1350		1	1.001	8.308	375
						0	1.002	8.308	375	
4	493722.945	104196.895	9.452	1.180	1350		1	1.002	8.272	375
						0	1.003	8.272	375	
5	493725.885	104187.618	9.551	1.310	1350		1	1.003	8.241	375
						0	1.004	8.241	375	
6	493725.806	104157.287	9.799	1.653	1350		1	1.004	8.146	375
						0	1.005	8.146	375	
7	493735.347	104125.109	9.731	1.691	1350		1	1.005	8.040	375
						0	1.006	8.040	375	
8	493730.627	104118.311	9.500	1.625	1350		1	1.006	8.014	375
9	493658.975	104147.455	9.835	1.463	1200					
						0	2.000	8.372	225	
13	493717.063	104147.455	9.810	1.510	1200					
						0	3.000	8.300	225	
10	493697.079	104147.455	9.658	1.426	1200		1	3.000	8.232	225
						2	2.000	8.242	225	
						0	2.001	8.232	225	
14	493673.638	104075.144	9.966	1.626	1200					
						0	4.000	8.340	300	
15	493671.906	104105.399	9.852	1.607	1200		1	4.000	8.245	300
						0	4.001	8.245	300	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
11	493696.950	104121.110	9.875	1.808	1200		1 2 0	4.001 2.001 2.002	8.152 8.142 8.067 300
12	493713.471	104114.923	9.500	1.625	1200		1	2.002	8.007 300
16	493688.492	104076.197	10.065	1.865	1350		0	5.000	8.200 375
17	493720.562	104076.084	9.879	1.780	1350		1 0	5.000 5.001	8.099 8.099 375
20	493769.894	104072.474	9.448	1.098	1200		0	6.000	8.350 225
21	493745.746	104073.312	9.587	1.319	1200		0 1	6.000 6.001	8.268 8.268 225
18	493733.420	104082.467	9.731	1.677	1350		0 1 2	6.001 5.001	8.216 8.054 375
19	493725.461	104093.496	9.500	1.625	1350		0 1	5.002 5.002	8.054 8.012 375
22	493732.097	104106.511	9.500	1.710	1350		0	1.008	7.790 450
23	493745.090	104106.067	9.482	1.742	1350		1 0	1.008 1.009	7.740 7.740 450
24	493778.105	104104.940	9.079	1.539	1350		1 0	1.009 1.010	7.540 7.540 450
25	493782.059	104107.757	9.039	1.539	1350		1	1.010	7.500 450



Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	✓
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	19.400	Additional Storage (m ³ /ha)	20.0
Ratio-R	0.333	Check Discharge Rate(s)	✓
Winter CV	1.000	Check Discharge Volume	✓
Analysis Speed	Detailed	100 year 360 minute (m ³)	

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	40	10	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m ³)	

Node 23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	7.740	Product Number	CTL-SHE-0095-5000-1750-5000
Design Depth (m)	1.750	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 22 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	25.090
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	7.850	Main Channel Slope (1:X)	1000.0
Safety Factor	1.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

12	19	8
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Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	307.0	0.0	1.571	650.1	0.0

Node 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.100	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.32	Length (m)	38.000		

Node 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.130	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	141.800		

Node 15 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.220	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	75	Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	14.400		

Node 20 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.940	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	42.950		

Node 14 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.216	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	36.660		

Node 16 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.400	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	10.900		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.100	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	0.450
Porosity	0.32	Length (m)	36.000		

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 87.52%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	1	930	9.433	0.957	6.7	3.3983	0.0000	FLOOD RISK
960 minute winter	2	930	9.433	1.058	7.5	19.3150	0.0000	FLOOD RISK
960 minute winter	3	930	9.433	1.125	7.3	24.5403	0.0000	FLOOD RISK
960 minute winter	4	930	9.433	1.161	10.1	2.7880	0.0000	FLOOD RISK
960 minute winter	5	930	9.433	1.192	15.3	3.6483	0.0000	FLOOD RISK
960 minute winter	6	930	9.433	1.287	17.9	2.7165	0.0000	SURCHARGED
960 minute winter	7	930	9.433	1.393	18.5	2.2484	0.0000	FLOOD RISK
960 minute winter	8	930	9.434	1.559	18.3	2.2313	0.0000	OK
960 minute winter	9	930	9.433	1.061	2.0	1.7743	0.0000	SURCHARGED
960 minute winter	13	930	9.433	1.133	1.2	1.6454	0.0000	SURCHARGED
960 minute winter	10	930	9.433	1.201	5.9	52.9243	0.0000	FLOOD RISK
960 minute winter	14	930	9.433	1.093	5.6	6.3507	0.0000	SURCHARGED
960 minute winter	15	930	9.433	1.188	6.7	4.8649	0.0000	SURCHARGED
960 minute winter	11	930	9.433	1.366	12.3	1.5451	0.0000	SURCHARGED
960 minute winter	12	930	9.434	1.559	12.2	1.7633	0.0000	OK
960 minute winter	16	930	9.433	1.233	4.2	2.9413	0.0000	SURCHARGED
960 minute winter	17	930	9.433	1.334	5.1	2.2223	0.0000	SURCHARGED
960 minute winter	20	930	9.433	1.083	5.1	30.7219	0.0000	FLOOD RISK
960 minute winter	21	930	9.433	1.165	4.1	1.7452	0.0000	FLOOD RISK
960 minute winter	18	930	9.433	1.379	9.5	2.1555	0.0000	FLOOD RISK
960 minute winter	19	930	9.434	1.559	9.4	2.2311	0.0000	OK
960 minute winter	22	930	9.433	1.643	16.8	2.8801	0.0000	FLOOD RISK
960 minute winter	23	930	9.433	1.693	5.0	3.8125	0.0000	FLOOD RISK
15 minute winter	24	10	7.627	0.087	19.4	0.1490	0.0000	OK
15 minute winter	25	10	7.577	0.077	19.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	1	1.000	2	6.4	0.492	0.057	3.5371	
960 minute winter	2	1.001	3	7.3	0.505	0.066	2.3611	
960 minute winter	3	1.002	4	7.2	0.427	0.064	1.2690	
960 minute winter	4	1.003	5	9.9	0.460	0.088	1.0734	
960 minute winter	5	1.004	6	15.0	0.554	0.134	3.3454	
960 minute winter	6	1.005	7	17.7	0.518	0.159	3.7019	
960 minute winter	7	1.006	8	18.3	0.553	0.164	0.9128	
960 minute winter	8	Flow through pond	22	15.4	0.043	0.001	751.4225	
960 minute winter	9	2.000	10	1.9	0.285	0.062	1.5154	
960 minute winter	13	3.000	10	1.1	0.164	0.036	0.7948	
960 minute winter	10	2.001	11	5.7	0.492	0.191	1.0478	
960 minute winter	14	4.000	15	5.4	0.444	0.087	2.1341	
960 minute winter	15	4.001	11	6.5	0.493	0.106	2.0819	
960 minute winter	11	2.002	12	12.2	0.508	0.189	1.2423	
960 minute winter	12	Flow through pond	22	15.4	0.043	0.001	751.4225	
960 minute winter	16	5.000	17	4.0	0.343	0.036	3.5372	
960 minute winter	17	5.001	18	4.9	0.299	0.044	1.5833	
960 minute winter	20	6.000	21	2.9	0.375	0.096	0.9610	
960 minute winter	21	6.001	18	4.0	0.469	0.132	0.6106	
960 minute winter	18	5.002	19	9.4	0.443	0.085	1.5002	
960 minute winter	19	Flow through pond	22	15.4	0.043	0.001	751.4225	
960 minute winter	22	1.008	23	5.0	0.170	0.025	2.0599	
960 minute winter	23	Hydro-Brake®	24	4.9				
15 minute winter	24	1.010	25	19.3	0.980	0.066	0.0956	67.1