

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
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	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
1	0.499	7.25	94.972	1200	436617.897	295339.556	1.652	93.320
2			94.980	1200	436561.249	295384.838	1.980	93.000
P6	1.670	5.00	95.000	1200	436547.738	295419.009	1.500	93.500
3			94.961	1200	436522.929	295415.480	2.871	92.090
4	0.029	5.00	93.983	1350	436491.280	295437.889	2.253	91.730
P7A	0.840	5.00	94.000	1200	436469.929	295480.884	1.500	92.500
5			93.962	1350	436445.121	295477.355	2.492	91.470
P7B	0.840	5.00	94.000	1200	436429.264	295519.006	1.500	92.500
6			92.934	1350	436404.420	295515.432	1.804	91.130
7			92.719	1350	436373.256	295542.305	1.689	91.030
8			92.281	1350	436354.730	295567.273	1.321	90.960
9			93.119	1350	436303.706	295603.924	2.339	90.780
10			92.400	1350	436239.889	295669.623	2.400	90.000
P9	1.260	5.00	94.470	1200	436487.673	295689.922	2.050	92.420
16	1.214	17.00	92.500	1350	436474.264	295696.711	2.570	89.930
17			91.411	1350	436442.193	295727.674	1.581	89.830
18	0.175	5.00	93.850	1350	436425.854	295721.713	4.080	89.770
19			93.000	1350	436349.656	295717.560	4.100	88.900
20			90.300	1350	436323.097	295714.255	1.700	88.600
P1HW1			90.100	1350	436301.189	295703.872	1.600	88.500
P8	1.800	5.00	94.500	1500	436340.377	295700.470	3.100	91.400
P1HW2			90.100	1500	436303.917	295698.278	1.600	88.500
P1HW3	0.314	5.00	90.100	2100	436231.726	295697.384	1.600	88.500
11			91.000	1350	436219.691	295702.108	3.570	87.430
12			88.740	1350	436198.662	295720.829	2.600	86.140
P2HW1			88.000	1350	436188.882	295722.723	1.950	86.050
P2HW2	0.200	5.00	88.000	1350	436156.955	295765.902	1.950	86.050
14			87.800	2100	436151.444	295772.777	1.805	85.995
15			87.200	1350	436148.293	295779.178	1.220	85.980

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	72.522	0.600	93.320	93.000	0.320	226.6	300	8.41	50.0
1.001	2	3	49.065	0.600	93.000	92.090	0.910	53.9	300	8.79	50.0
2.000	P6	3	25.059	0.600	93.500	92.240	1.260	19.9	150	5.18	50.0
1.002	3	4	38.779	0.600	92.090	91.730	0.360	107.7	300	9.22	50.0
1.003	4	5	60.731	0.600	91.730	91.470	0.260	233.6	375	10.08	50.0
3.000	P7A	5	25.058	0.600	92.500	91.695	0.805	31.1	150	5.23	50.0
1.004	5	6	55.735	0.600	91.470	91.200	0.270	206.4	375	10.82	50.0
4.000	P7B	6	25.100	0.600	92.500	91.425	1.075	23.3	150	5.20	50.0
1.005	6	7	41.150	0.600	91.130	91.030	0.100	411.5	375	11.59	50.0
1.006	7	8	31.090	0.600	91.030	90.960	0.070	444.1	375	12.20	50.0
1.007	8	9	62.823	0.600	90.960	90.780	0.180	349.0	375	13.28	50.0
1.008	9	10	91.591	0.600	90.780	90.000	0.780	117.4	375	14.20	48.9
1.009	10	11	38.252	0.600	90.000	87.430	2.570	14.9	375	14.33	48.2
6.000	P9	16	15.030	0.600	92.420	89.930	2.490	6.0	375	5.03	50.0
7.001	16	17	44.579	0.600	89.930	89.830	0.100	445.8	375	17.87	50.0
7.002	17	18	33.984	0.600	89.830	89.770	0.060	566.4	375	18.62	50.0
7.003	18	19	76.311	0.600	89.770	88.900	0.870	87.7	375	19.28	50.0
6.004	19	20	26.764	0.600	88.900	88.600	0.300	89.2	375	19.51	34.2
6.005	20	P1HW1	24.244	0.600	88.600	88.550	0.050	484.9	450	19.95	33.7
7.000	P8	P1HW2	36.526	0.600	91.400	88.550	2.850	12.8	525	5.10	50.0
5.000	P1HW3	11	12.929	0.600	88.500	87.430	1.070	12.1	375	5.04	50.0
1.010	11	12	28.155	0.600	87.430	86.140	1.290	21.8	375	14.45	47.9
1.011	12	P2HW1	9.962	0.600	86.140	86.050	0.090	110.7	450	14.54	45.9
1.012	P2HW2	14	8.811	0.600	86.050	85.995	0.055	160.2	375	5.10	45.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.040	73.5	67.6	1.352	1.680	0.499	0.0	228	1.174
1.001	2.145	151.7	67.6	1.680	2.571	0.499	0.0	140	2.087
2.000	2.268	40.1	226.3	1.350	2.571	1.670	0.0	150	2.311
1.002	1.514	107.0	294.0	2.571	1.953	2.169	0.0	300	1.534
1.003	1.181	130.4	297.9	1.878	2.117	2.198	0.0	375	1.196
3.000	1.811	32.0	113.8	1.350	2.117	0.840	0.0	150	1.844
1.004	1.257	138.8	411.7	2.117	1.359	3.038	0.0	375	1.273
4.000	2.093	37.0	113.8	1.350	1.359	0.840	0.0	150	2.132
1.005	0.887	97.9	525.6	1.429	1.314	3.878	0.0	375	0.898
1.006	0.853	94.2	525.6	1.314	0.946	3.878	0.0	375	0.864
1.007	0.964	106.5	525.6	0.946	1.964	3.878	0.0	375	0.976
1.008	1.671	184.5	514.0	1.964	2.025	3.878	0.0	375	1.692
1.009	4.716	520.9	506.6	2.025	3.195	3.878	0.0	301	5.336
6.000	7.414	818.8	170.8	1.675	2.195	1.260	0.0	115	5.903
7.001	0.851	94.0	335.3	2.195	1.206	2.474	0.0	375	0.862
7.002	0.754	83.3	335.3	1.206	3.705	2.474	0.0	375	0.764
7.003	1.935	213.7	359.0	3.705	3.725	2.649	0.0	375	1.960
6.004	1.919	211.9	245.4	3.725	1.325	2.649	0.0	375	1.943
6.005	0.916	145.7	242.0	1.250	1.100	2.649	0.0	450	0.928
7.000	6.279	1359.3	243.9	2.575	1.025	1.800	0.0	149	4.811
5.000	5.236	578.3	42.6	1.225	3.195	0.314	0.0	68	3.101
1.010	3.892	429.9	544.3	3.195	2.225	4.192	0.0	375	3.942
1.011	1.931	307.2	521.5	2.150	1.500	4.192	0.0	450	1.956
1.012	1.429	157.8	24.4	1.575	1.430	0.200	0.0	99	1.047

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)
1.013	14	15	7.135	0.600	85.995	85.980	0.015	475.7	375	5.25	44.7

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)
1.013	0.824	91.0	24.2	1.430	0.845	0.200	0.0	131	0.700

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	72.522	226.6	300	Circular_Default Sewer Type	94.972	93.320	1.352	94.980	93.000	1.680
1.001	49.065	53.9	300	Circular_Default Sewer Type	94.980	93.000	1.680	94.961	92.090	2.571
2.000	25.059	19.9	150	Circular_Default Sewer Type	95.000	93.500	1.350	94.961	92.240	2.571
1.002	38.779	107.7	300	Circular_Default Sewer Type	94.961	92.090	2.571	93.983	91.730	1.953
1.003	60.731	233.6	375	Circular_Default Sewer Type	93.983	91.730	1.878	93.962	91.470	2.117
3.000	25.058	31.1	150	Circular_Default Sewer Type	94.000	92.500	1.350	93.962	91.695	2.117
1.004	55.735	206.4	375	Circular_Default Sewer Type	93.962	91.470	2.117	92.934	91.200	1.359
4.000	25.100	23.3	150	Circular_Default Sewer Type	94.000	92.500	1.350	92.934	91.425	1.359
1.005	41.150	411.5	375	Circular_Default Sewer Type	92.934	91.130	1.429	92.719	91.030	1.314
1.006	31.090	444.1	375	Circular_Default Sewer Type	92.719	91.030	1.314	92.281	90.960	0.946
1.007	62.823	349.0	375	Circular_Default Sewer Type	92.281	90.960	0.946	93.119	90.780	1.964
1.008	91.591	117.4	375	Circular_Default Sewer Type	93.119	90.780	1.964	92.400	90.000	2.025
1.009	38.252	14.9	375	Circular_Default Sewer Type	92.400	90.000	2.025	91.000	87.430	3.195
6.000	15.030	6.0	375	Circular_Default Sewer Type	94.470	92.420	1.675	92.500	89.930	2.195
7.001	44.579	445.8	375	Circular_Default Sewer Type	92.500	89.930	2.195	91.411	89.830	1.206
7.002	33.984	566.4	375	Circular_Default Sewer Type	91.411	89.830	1.206	93.850	89.770	3.705
7.003	76.311	87.7	375	Circular_Default Sewer Type	93.850	89.770	3.705	93.000	88.900	3.725
6.004	26.764	89.2	375	Circular_Default Sewer Type	93.000	88.900	3.725	90.300	88.600	1.325
6.005	24.244	484.9	450	Circular_Default Sewer Type	90.300	88.600	1.250	90.100	88.550	1.100

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Sealed Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
2.000	P6	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.002	3	1200	Manhole	Adoptable	4	1350	Manhole	Adoptable
1.003	4	1350	Manhole	Adoptable	5	1350	Manhole	Adoptable
3.000	P7A	1200	Manhole	Adoptable	5	1350	Manhole	Adoptable
1.004	5	1350	Manhole	Adoptable	6	1350	Manhole	Adoptable
4.000	P7B	1200	Manhole	Adoptable	6	1350	Manhole	Adoptable
1.005	6	1350	Manhole	Adoptable	7	1350	Manhole	Adoptable
1.006	7	1350	Manhole	Adoptable	8	1350	Manhole	Adoptable
1.007	8	1350	Manhole	Adoptable	9	1350	Manhole	Adoptable
1.008	9	1350	Manhole	Adoptable	10	1350	Manhole	Adoptable
1.009	10	1350	Manhole	Adoptable	11	1350	Manhole	Adoptable
6.000	P9	1200	Manhole	Adoptable	16	1350	Sealed Manhole	Adoptable
7.001	16	1350	Sealed Manhole	Adoptable	17	1350	Sealed Manhole	Adoptable
7.002	17	1350	Sealed Manhole	Adoptable	18	1350	Manhole	Adoptable
7.003	18	1350	Manhole	Adoptable	19	1350	Manhole	Adoptable
6.004	19	1350	Manhole	Adoptable	20	1350	Manhole	Adoptable
6.005	20	1350	Manhole	Adoptable	P1HW1	1350	Manhole	Adoptable

Pipeline Schedule

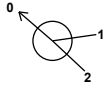
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.000	36.526	12.8	525	Circular_Default Sewer Type	94.500	91.400	2.575	90.100	88.550	1.025
5.000	12.929	12.1	375	Circular_Default Sewer Type	90.100	88.500	1.225	91.000	87.430	3.195
1.010	28.155	21.8	375	Circular_Default Sewer Type	91.000	87.430	3.195	88.740	86.140	2.225
1.011	9.962	110.7	450	Circular_Default Sewer Type	88.740	86.140	2.150	88.000	86.050	1.500
1.012	8.811	160.2	375	Circular_Default Sewer Type	88.000	86.050	1.575	87.800	85.995	1.430
1.013	7.135	475.7	375	Circular_Default Sewer Type	87.800	85.995	1.430	87.200	85.980	0.845

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.000	P8	1500	Manhole	Adoptable	P1HW2	1500	Manhole	Adoptable
5.000	P1HW3	2100	Manhole	Adoptable	11	1350	Manhole	Adoptable
1.010	11	1350	Manhole	Adoptable	12	1350	Manhole	Adoptable
1.011	12	1350	Manhole	Adoptable	P2HW1	1350	Manhole	Adoptable
1.012	P2HW2	1350	Manhole	Adoptable	14	2100	Manhole	Adoptable
1.013	14	2100	Manhole	Adoptable	15	1350	Manhole	Adoptable

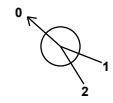
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	436617.897	295339.556	94.972	1.652	1200				
						0	1.000	93.320	300
2	436561.249	295384.838	94.980	1.980	1200		1	1.000	93.000
						0	1.001	93.000	300
P6	436547.738	295419.009	95.000	1.500	1200				
						0	2.000	93.500	150
3	436522.929	295415.480	94.961	2.871	1200		1	2.000	92.240
						2	1.001	92.090	300
						0	1.002	92.090	300
4	436491.280	295437.889	93.983	2.253	1350		1	1.002	91.730
						0	1.003	91.730	375
P7A	436469.929	295480.884	94.000	1.500	1200				
						0	3.000	92.500	150
5	436445.121	295477.355	93.962	2.492	1350		1	3.000	91.695
						2	1.003	91.470	375
						0	1.004	91.470	375
P7B	436429.264	295519.006	94.000	1.500	1200				
						0	4.000	92.500	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
6	436404.420	295515.432	92.934	1.804	1350		1 4.000	91.425	150
							2 1.004	91.200	375
							0 1.005	91.130	375
7	436373.256	295542.305	92.719	1.689	1350		1 1.005	91.030	375
							0 1.006	91.030	375
8	436354.730	295567.273	92.281	1.321	1350		1 1.006	90.960	375
							0 1.007	90.960	375
9	436303.706	295603.924	93.119	2.339	1350		1 1.007	90.780	375
							0 1.008	90.780	375
10	436239.889	295669.623	92.400	2.400	1350		1 1.008	90.000	375
							0 1.009	90.000	375
P9	436487.673	295689.922	94.470	2.050	1200				
							0 6.000	92.420	375
16	436474.264	295696.711	92.500	2.570	1350		1 6.000	89.930	375
							0 7.001	89.930	375
17	436442.193	295727.674	91.411	1.581	1350		1 7.001	89.830	375
							0 7.002	89.830	375
18	436425.854	295721.713	93.850	4.080	1350		1 7.002	89.770	375
							0 7.003	89.770	375
19	436349.656	295717.560	93.000	4.100	1350		1 7.003	88.900	375
							0 6.004	88.900	375
20	436323.097	295714.255	90.300	1.700	1350		1 6.004	88.600	375
							0 6.005	88.600	450
P1HW1	436301.189	295703.872	90.100	1.600	1350		1 6.005	88.550	450
P8	436340.377	295700.470	94.500	3.100	1500				
							0 7.000	91.400	525

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
P1HW2	436303.917	295698.278	90.100	1.600	1500		1	7.000	88.550	525
P1HW3	436231.726	295697.384	90.100	1.600	2100		0	5.000	88.500	375
11	436219.691	295702.108	91.000	3.570	1350		1	5.000	87.430	375
						2	1.009	87.430	375	
						0	1.010	87.430	375	
12	436198.662	295720.829	88.740	2.600	1350		1	1.010	86.140	375
						0	1.011	86.140	450	
P2HW1	436188.882	295722.723	88.000	1.950	1350		1	1.011	86.050	450
P2HW2	436156.955	295765.902	88.000	1.950	1350		0	1.012	86.050	375
						1	1.012	85.995	375	
14	436151.444	295772.777	87.800	1.805	2100		0	1.013	85.995	375
						1	1.013	85.980	375	
15	436148.293	295779.178	87.200	1.220	1350		1	1.013	85.980	375

Simulation Settings

Rainfall Methodology	FEH-13	Skip Steady State	x	Check Discharge Rate(s)	x
Rainfall Events	Singular	Drain Down Time (mins)	2440	Check Discharge Volume	x
Summer CV	1.000	Additional Storage (m³/ha)	20.0		
Analysis Speed	Normal	Starting Level (m)			

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 %)
30	0	0	0
100	0	0	0
100	40	0	0

Node P6 Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	8.0	Orifice Diameter (m)	0.121
Invert Level (m)	93.500	Min Outlet Diameter (m)	0.145		

Node P7A Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	5.0	Orifice Diameter (m)	0.098
Invert Level (m)	92.500	Min Outlet Diameter (m)	0.145		

Node P7B Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	5.0	Orifice Diameter (m)	0.098
Invert Level (m)	92.500	Min Outlet Diameter (m)	0.145		

Node P9 Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	6.0	Orifice Diameter (m)	0.106
Invert Level (m)	92.420	Min Outlet Diameter (m)	0.145		

Node P1HW3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	88.500	Product Number	CTL-SHE-0203-2200-1300-2200
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	22.0	Min Node Diameter (mm)	1800

Node 14 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	85.995	Product Number	CTL-SHE-0240-3370-1650-3370
Design Depth (m)	1.650	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	33.7	Min Node Diameter (mm)	2100

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	94.600	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	9	Depth (m)	0.300
Safety Factor	2.0	Width (m)	50.000	Inf Depth (m)	
Porosity	0.30	Length (m)	35.000		

Node P6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	93.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1485

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1670.0	1670.0	1.000	1670.0	1814.9	1.100	0.0	1814.9

Node P7A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1125

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	840.0	840.0	1.000	840.0	942.7	1.100	0.0	942.7

Node P7B Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1125

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	840.0	840.0	1.000	840.0	942.7	1.100	0.0	942.7

Node P9 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.420
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1530

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1260.0	1260.0	1.000	1260.0	1385.8	1.100	0.0	1385.8

Node P1HW3 Pond Storage Structure

Invert Level (m)	88.500	Time to half empty (mins)	1995	Analyse flow through structure	x
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Inlets

P1HW2	P1HW1
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Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1479.0	1.300	2180.0	1.600	2355.0

Node P2HW2 Pond Storage Structure

Invert Level (m)	86.050	Time to half empty (mins)		Analyse flow through structure	x
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Inlets

P2HW1

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	906.0	1.650	1611.0	1.950	1756.0

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	15	94.605	1.285	154.1	10.5332	0.0000	SURCHARGED
30 minute summer	2	23	93.651	0.651	140.9	0.7358	0.0000	SURCHARGED
480 minute summer	P6	480	93.921	0.421	115.5	712.1890	0.0000	SURCHARGED
30 minute summer	3	23	92.986	0.896	133.5	1.0139	0.0000	SURCHARGED
30 minute summer	4	23	92.383	0.653	135.5	1.1036	0.0000	SURCHARGED
480 minute summer	P7A	480	92.897	0.397	58.1	338.6670	0.0000	SURCHARGED
30 minute summer	5	24	92.099	0.629	135.9	0.9001	0.0000	SURCHARGED
480 minute summer	P7B	480	92.897	0.397	58.1	338.6670	0.0000	SURCHARGED
30 minute summer	6	24	91.813	0.683	137.4	0.9776	0.0000	SURCHARGED
30 minute summer	7	24	91.575	0.545	137.5	0.7802	0.0000	SURCHARGED
30 minute summer	8	24	91.385	0.425	137.5	0.6087	0.0000	SURCHARGED
30 minute summer	9	25	91.045	0.265	137.3	0.3795	0.0000	OK
30 minute summer	10	25	90.131	0.131	137.2	0.1879	0.0000	OK
600 minute summer	P9	600	92.842	0.422	70.5	537.8212	0.0000	SURCHARGED
30 minute summer	16	27	92.248	2.318	240.0	25.2125	0.0000	FLOOD RISK
30 minute summer	17	24	91.411	1.581	233.3	2.4092	0.0000	FLOOD RISK
30 minute summer	18	27	90.927	1.157	243.5	2.6489	0.0000	SURCHARGED
30 minute summer	19	28	89.651	0.751	243.5	1.0744	0.0000	SURCHARGED
600 minute summer	20	600	89.393	0.793	80.8	1.1348	0.0000	SURCHARGED
600 minute summer	P1HW1	600	89.392	0.892	80.4	0.0000	0.0000	OK
15 minute summer	P8	10	91.711	0.311	753.1	4.1651	0.0000	OK
600 minute summer	P1HW2	600	89.391	0.891	100.7	0.0000	0.0000	OK
600 minute summer	P1HW3	600	89.384	0.884	80.5	1537.5390	0.0000	SURCHARGED
30 minute summer	11	25	87.586	0.156	158.9	0.2227	0.0000	OK
2880 minute summer	12	3120	87.041	0.901	47.0	1.2891	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	134.8	1.955	1.833	5.1069	
30 minute summer	2	1.001	3	126.7	1.851	0.836	3.4551	
480 minute summer	P6	ACO Q-Brake	3	8.0				
30 minute summer	3	1.002	4	129.7	1.842	1.212	2.7308	
30 minute summer	4	1.003	5	131.7	1.321	1.009	6.6985	
480 minute summer	P7A	ACO Q-Brake	5	5.0				
30 minute summer	5	1.004	6	132.7	1.316	0.956	6.1474	
480 minute summer	P7B	ACO Q-Brake	6	5.0				
30 minute summer	6	1.005	7	137.5	1.247	1.404	4.5387	
30 minute summer	7	1.006	8	137.5	1.247	1.460	3.4291	
30 minute summer	8	1.007	9	137.3	1.310	1.290	6.0822	
30 minute summer	9	1.008	10	137.2	2.322	0.744	5.3898	
30 minute summer	10	1.009	11	137.2	3.541	0.263	1.4836	
600 minute summer	P9	ACO Q-Brake	16	6.0				
30 minute summer	16	7.001	17	233.3	2.115	2.481	4.9169	
30 minute summer	17	7.002	18	233.2	2.115	2.800	3.7483	
30 minute summer	18	7.003	19	243.5	2.208	1.139	8.4169	
30 minute summer	19	6.004	20	243.4	2.207	1.148	2.9520	
600 minute summer	20	6.005	P1HW1	80.4	0.639	0.552	3.8413	
15 minute summer	P8	7.000	P1HW2	747.7	6.078	0.550	4.4928	
600 minute summer	P1HW3	5.000	11	22.0	1.947	0.038	0.2079	
30 minute summer	11	1.010	12	158.8	2.567	0.369	1.7394	
2880 minute summer	12	1.011	P2HW1	46.9	0.933	0.153	1.5784	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2880 minute summer	P2HW1	3120	87.039	0.989	46.9	0.0000	0.0000	OK
2880 minute summer	P2HW2	3120	87.024	0.974	41.6	1099.5920	0.0000	SURCHARGED
2880 minute summer	14	3120	87.020	1.025	33.7	3.5496	0.0000	SURCHARGED
15 minute summer	15	1	85.980	0.000	31.6	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)
2880 minute summer	P2HW2	1.012	14	33.7	0.502	0.214	0.9718	
2880 minute summer	14	Hydro-Brake®	15	33.7				6295.5

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	16	94.644	1.324	202.8	31.7138	0.0000	SURCHARGED
30 minute summer	2	22	93.713	0.713	146.5	0.8059	0.0000	SURCHARGED
720 minute summer	P6	720	94.098	0.598	108.5	1013.3550	0.0000	SURCHARGED
30 minute summer	3	22	93.065	0.975	133.3	1.1023	0.0000	SURCHARGED
30 minute summer	4	22	92.466	0.736	141.4	1.2423	0.0000	SURCHARGED
600 minute summer	P7A	600	93.077	0.577	62.3	491.6013	0.0000	SURCHARGED
30 minute summer	5	22	92.162	0.692	138.5	0.9901	0.0000	SURCHARGED
600 minute summer	P7B	600	93.077	0.577	62.3	491.6013	0.0000	SURCHARGED
30 minute summer	6	22	91.858	0.728	141.6	1.0418	0.0000	SURCHARGED
60 minute summer	7	38	91.606	0.576	141.3	0.8244	0.0000	SURCHARGED
60 minute summer	8	38	91.406	0.446	141.4	0.6376	0.0000	SURCHARGED
60 minute summer	9	39	91.051	0.271	141.4	0.3879	0.0000	OK
60 minute summer	10	39	90.134	0.134	141.3	0.1911	0.0000	OK
720 minute summer	P9	720	93.026	0.606	81.9	771.1212	0.0000	SURCHARGED
15 minute summer	16	14	92.500	2.570	284.6	35.4110	0.0000	FLOOD RISK
15 minute summer	17	12	91.411	1.581	268.0	3.4143	0.0000	FLOOD RISK
30 minute summer	18	28	92.101	2.331	302.2	5.3357	0.0000	SURCHARGED
30 minute summer	19	29	90.157	1.257	301.1	1.7986	0.0000	SURCHARGED
600 minute summer	20	615	89.675	1.075	106.9	1.5382	0.0000	SURCHARGED
600 minute summer	P1HW1	615	89.675	1.175	106.7	0.0000	0.0000	OK
15 minute summer	P8	10	91.784	0.384	991.3	5.1375	0.0000	OK
600 minute summer	P1HW2	600	89.673	1.173	133.4	0.0000	0.0000	OK
600 minute summer	P1HW3	615	89.666	1.166	101.6	2113.9090	0.0000	SURCHARGED
60 minute summer	11	39	87.588	0.158	163.2	0.2261	0.0000	OK
4320 minute summer	12	4380	87.368	1.228	46.7	1.7577	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	134.9	1.998	1.834	5.1069	
30 minute summer	2	1.001	3	126.3	1.864	0.833	3.4551	
720 minute summer	P6	ACO Q-Brake	3	8.0				
30 minute summer	3	1.002	4	128.3	1.822	1.199	2.7308	
30 minute summer	4	1.003	5	133.7	1.330	1.025	6.6985	
600 minute summer	P7A	ACO Q-Brake	5	5.0				
30 minute summer	5	1.004	6	136.7	1.318	0.985	6.1474	
600 minute summer	P7B	ACO Q-Brake	6	5.0				
30 minute summer	6	1.005	7	141.4	1.282	1.444	4.5387	
60 minute summer	7	1.006	8	141.4	1.282	1.500	3.4291	
60 minute summer	8	1.007	9	141.4	1.340	1.328	6.1443	
60 minute summer	9	1.008	10	141.3	2.332	0.766	5.5166	
60 minute summer	10	1.009	11	141.3	3.570	0.271	1.5155	
720 minute summer	P9	ACO Q-Brake	16	6.0				
15 minute summer	16	7.001	17	268.0	2.430	2.850	4.9169	
15 minute summer	17	7.002	18	268.7	2.436	3.226	3.7483	
30 minute summer	18	7.003	19	301.1	2.730	1.409	8.4169	
30 minute summer	19	6.004	20	300.7	2.726	1.419	2.9520	
600 minute summer	20	6.005	P1HW1	106.7	0.673	0.732	3.8413	
15 minute summer	P8	7.000	P1HW2	983.5	6.368	0.724	5.6308	
600 minute summer	P1HW3	5.000	11	22.0	1.959	0.038	0.2216	
60 minute summer	11	1.010	12	163.2	2.594	0.380	1.8119	
4320 minute summer	12	1.011	P2HW1	46.6	0.896	0.152	1.5784	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute summer	P2HW1	4380	87.366	1.316	46.6	0.0000	0.0000	OK
4320 minute summer	P2HW2	4380	87.350	1.300	41.5	1557.2490	0.0000	SURCHARGED
4320 minute summer	14	4380	87.346	1.351	33.7	4.6796	0.0000	SURCHARGED
15 minute summer	15	1	85.980	0.000	32.9	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)
4320 minute summer	P2HW2	1.012	14	33.7	0.502	0.214	0.9718	
4320 minute summer	14	Hydro-Brake®	15	33.7				8412.1

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.92%

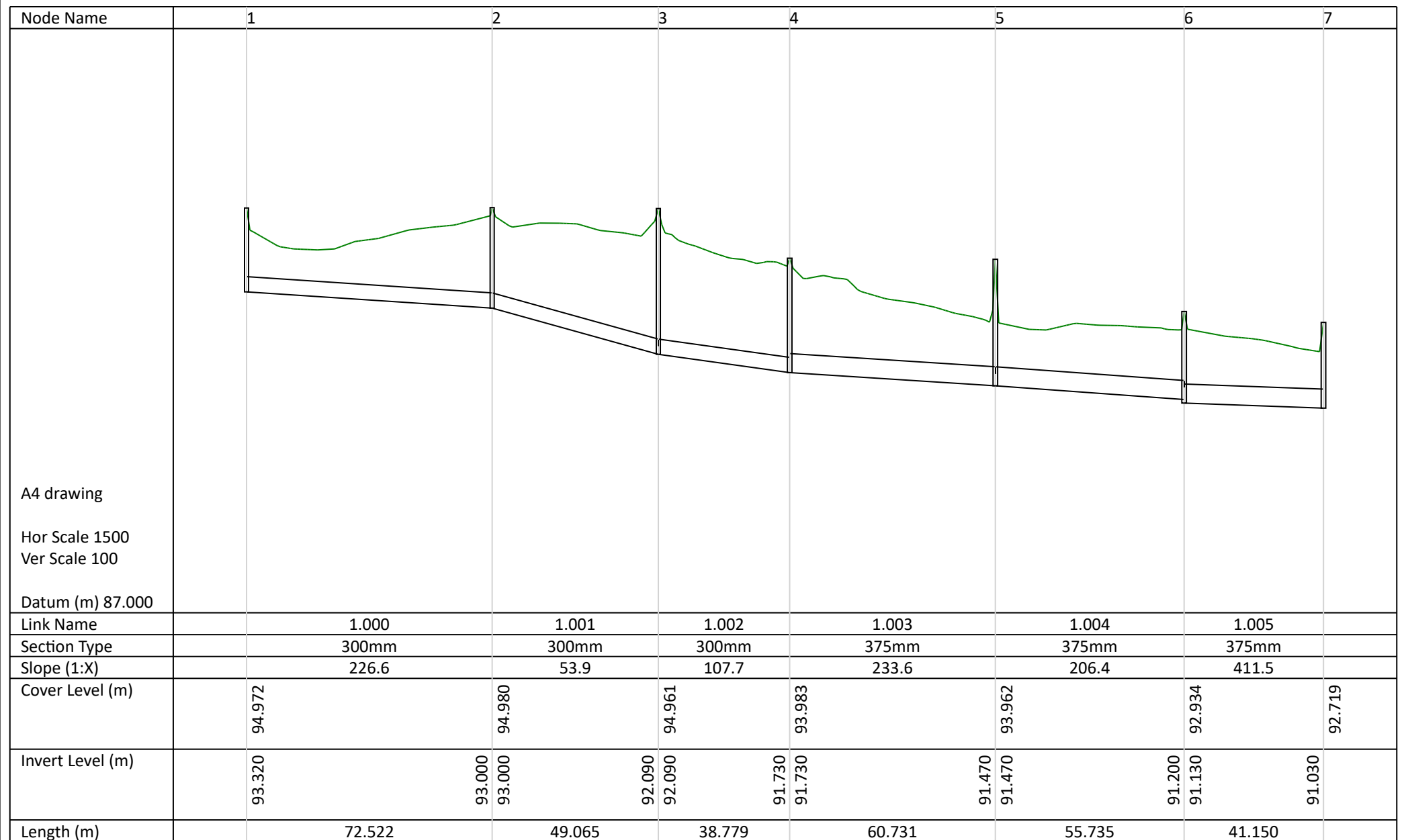
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	16	94.720	1.400	284.0	72.1939	0.0000	FLOOD RISK
30 minute summer	2	21	93.790	0.790	139.4	0.8929	0.0000	SURCHARGED
720 minute summer	P6	720	94.382	0.882	151.9	1493.8630	0.0000	SURCHARGED
30 minute summer	3	20	93.163	1.073	134.9	1.2139	0.0000	SURCHARGED
30 minute summer	4	20	92.589	0.859	151.9	1.4509	0.0000	SURCHARGED
600 minute summer	P7A	600	93.347	0.847	87.2	721.7546	0.0000	SURCHARGED
30 minute summer	5	20	92.256	0.786	148.6	1.1250	0.0000	SURCHARGED
600 minute summer	P7B	600	93.347	0.847	87.2	721.7546	0.0000	SURCHARGED
30 minute summer	6	20	91.924	0.794	147.6	1.1369	0.0000	SURCHARGED
30 minute summer	7	21	91.652	0.621	147.3	0.8894	0.0000	SURCHARGED
30 minute summer	8	21	91.435	0.475	147.0	0.6801	0.0000	SURCHARGED
30 minute summer	9	21	91.059	0.279	147.2	0.3995	0.0000	OK
30 minute summer	10	22	90.137	0.137	146.9	0.1955	0.0000	OK
720 minute summer	P9	720	93.305	0.885	114.6	1127.4530	0.0000	SURCHARGED
15 minute summer	16	11	92.500	2.570	398.5	69.6194	0.0000	FLOOD RISK
15 minute summer	17	10	91.411	1.581	353.2	6.8945	0.0000	FLOOD RISK
30 minute summer	18	24	93.850	4.080	417.4	9.3391	17.3765	FLOOD
60 minute summer	19	46	90.990	2.090	371.4	2.9906	0.0000	SURCHARGED
720 minute summer	20	720	90.098	1.498	127.1	2.1435	0.0000	FLOOD RISK
720 minute summer	P1HW1	735	90.098	1.598	126.9	0.0000	0.0000	OK
15 minute summer	P8	11	92.706	1.306	1388.3	17.4702	0.0000	SURCHARGED
720 minute summer	P1HW2	720	90.096	1.596	163.8	0.0000	0.0000	OK
720 minute summer	P1HW3	735	90.087	1.587	118.4	3059.6390	0.0000	FLOOD RISK
1440 minute summer	11	3900	87.667	0.237	63.3	0.3395	0.0000	OK
1440 minute summer	12	3900	87.661	1.521	63.3	2.1767	0.0000	SURCHARGED

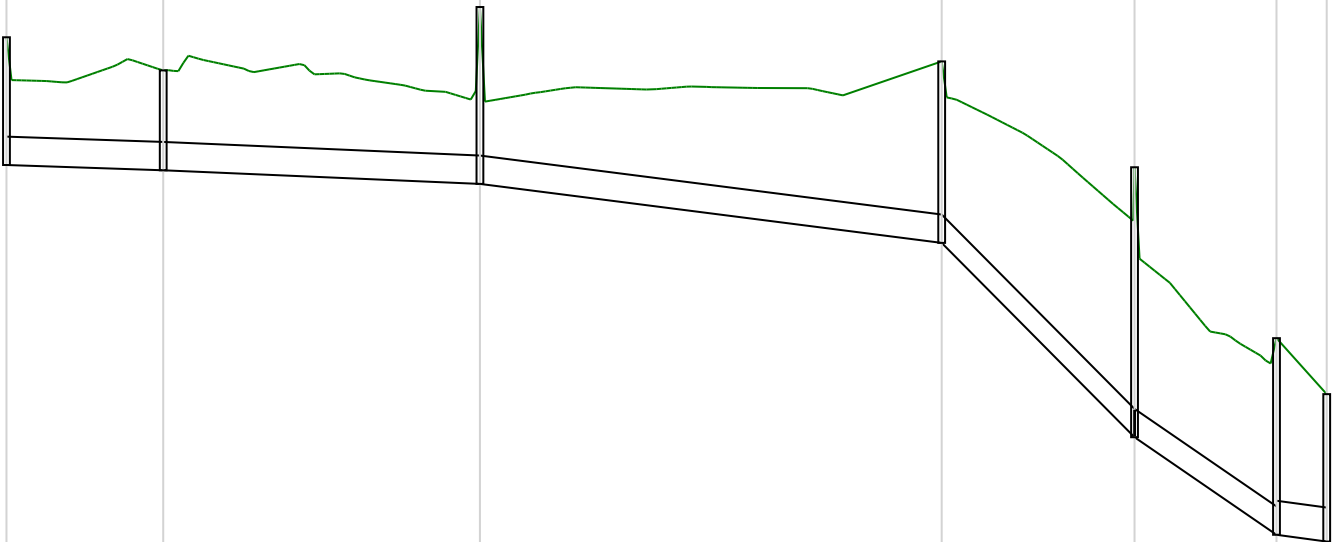
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	140.5	2.065	1.911	5.1069	
30 minute summer	2	1.001	3	127.9	1.872	0.843	3.4551	
720 minute summer	P6	ACO Q-Brake	3	8.0				
30 minute summer	3	1.002	4	131.8	1.871	1.231	2.7308	
30 minute summer	4	1.003	5	144.0	1.334	1.104	6.6985	
600 minute summer	P7A	ACO Q-Brake	5	5.0				
30 minute summer	5	1.004	6	142.6	1.305	1.027	6.1474	
600 minute summer	P7B	ACO Q-Brake	6	5.0				
30 minute summer	6	1.005	7	147.3	1.336	1.504	4.5387	
30 minute summer	7	1.006	8	147.0	1.333	1.561	3.4291	
30 minute summer	8	1.007	9	147.2	1.384	1.383	6.2286	
30 minute summer	9	1.008	10	146.9	2.346	0.796	5.6857	
30 minute summer	10	1.009	11	147.0	3.613	0.282	1.5578	
720 minute summer	P9	ACO Q-Brake	16	6.0				
15 minute summer	16	7.001	17	353.2	3.203	3.756	4.9169	
15 minute summer	17	7.002	18	352.8	3.199	4.237	3.7483	
30 minute summer	18	7.003	19	374.4	3.395	1.752	8.4169	
60 minute summer	19	6.004	20	369.3	3.349	1.743	2.9520	
720 minute summer	20	6.005	P1HW1	126.9	0.801	0.870	3.8413	
15 minute summer	P8	7.000	P1HW2	1301.7	6.278	0.958	7.1473	
720 minute summer	P1HW3	5.000	11	23.8	1.903	0.041	0.3939	
1440 minute summer	11	1.010	12	63.3	1.640	0.147	2.5872	
1440 minute summer	12	1.011	P2HW1	63.1	1.199	0.205	1.5784	

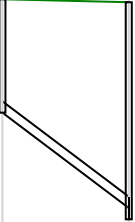
Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.92%

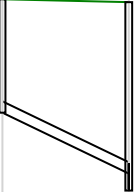
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	P2HW1	3900	87.659	1.609	63.1	0.0000	0.0000	OK
1440 minute summer	P2HW2	3900	87.641	1.591	53.4	2004.0460	0.0000	SURCHARGED
1440 minute summer	14	3900	87.636	1.641	33.8	5.6842	0.0000	FLOOD RISK
15 minute summer	15	1	85.980	0.000	33.7	0.0000	0.0000	OK

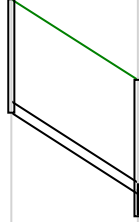
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	P2HW2	1.012	14	33.8	0.502	0.214	0.9718	
1440 minute summer	14	Hydro-Brake®	15	33.7				6819.1

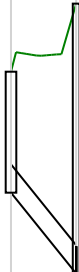


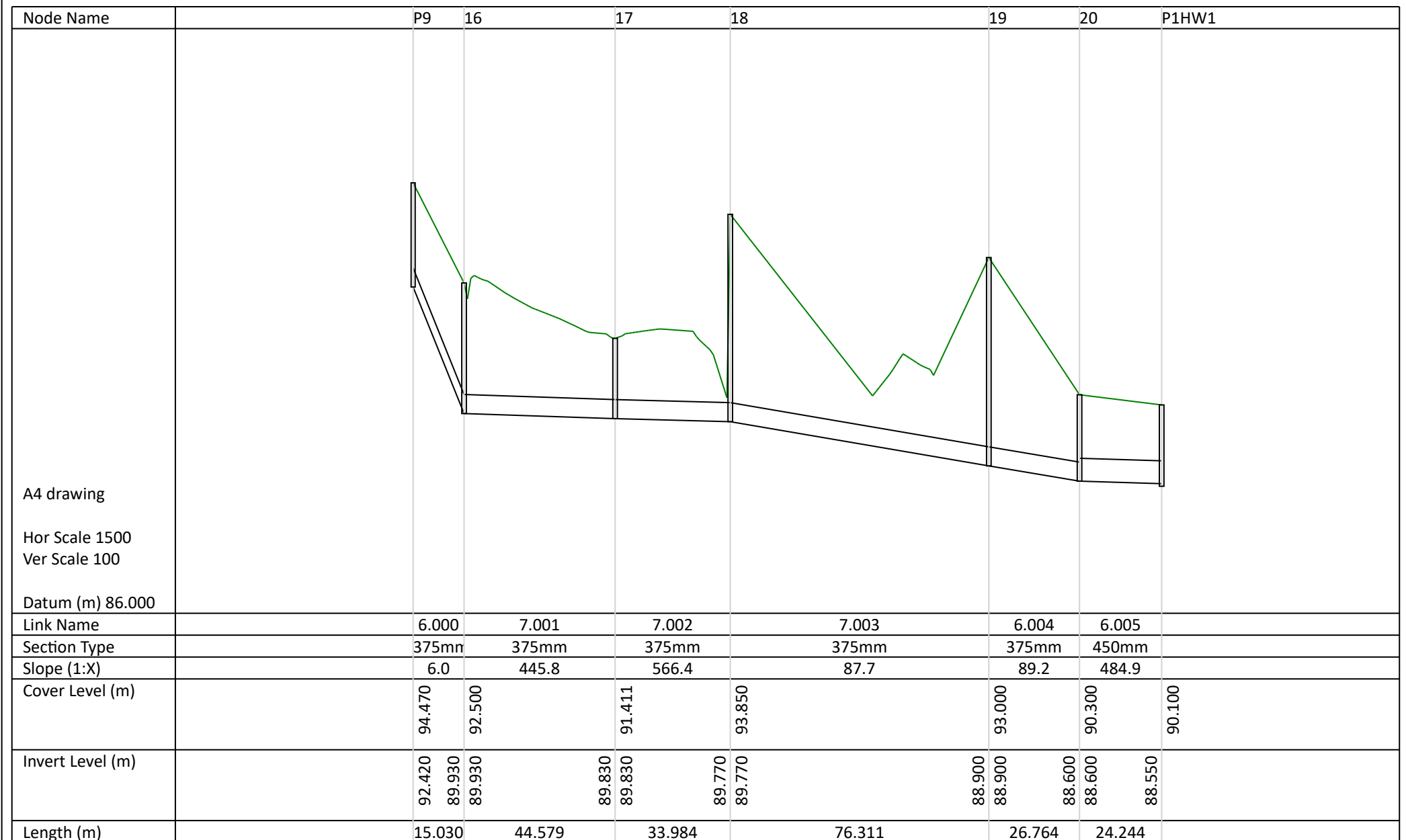
Node Name	7	8	9	10	11	12	P2HW1
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 84.000 							
Link Name	1.006	1.007	1.008	1.009	1.010	1.01	
Section Type	375mm	375mm	375mm	375mm	375mm	450r	
Slope (1:X)	444.1	349.0	117.4	14.9	21.8	110.	
Cover Level (m)	92.719	92.281	93.119	92.400	91.000	88.740	88.000
Invert Level (m)	91.030	90.960	90.780	90.000	87.430	86.140	86.050
Length (m)	31.090	62.823	91.591	38.252	28.155	9.96	

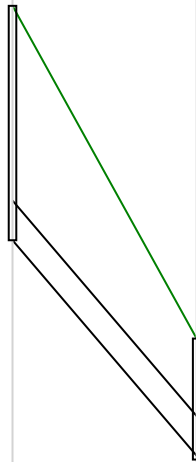
Node Name	P6		3
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 88.000			
	Link Name		2.000
	Section Type		150mm
	Slope (1:X)		19.9
	Cover Level (m)		95.000
Invert Level (m)	93.500	92.240	94.961
Length (m)	25.059		

Node Name	P7A		5
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 87.000			
Link Name	3.000		
Section Type	150mm		
Slope (1:X)	31.1		
Cover Level (m)	94.000		93.962
Invert Level (m)	92.500	91.695	
Length (m)	25.058		

Node Name		P7B	6
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 87.000			
Link Name		4.000	
Section Type		150mm	
Slope (1:X)		23.3	
Cover Level (m)		94.000	92.934
Invert Level (m)		92.500	91.425
Length (m)		25.100	

Node Name	P1HW31		
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 83.000			
	Link Name	5.000	
	Section Type	375m	
	Slope (1:X)	12.1	
	Cover Level (m)	90.100	91.000
Invert Level (m)	88.500	87.430	
Length (m)	12.92		



Node Name	P8	P1HW2
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 86.000		
Link Name	7.000	
Section Type	525mm	
Slope (1:X)	12.8	
Cover Level (m)	94.500	90.100
Invert Level (m)	91.400	88.550
Length (m)	36.526	

Node Name	P2H115		
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 81.000			
	Link Name	1.011.0	
	Section Type	375	375
	Slope (1:X)	160	475
	Cover Level (m)	88.000	87.800
Invert Level (m)	86.055	85.985	85.985
Length (m)	8.817.1		

