

DRAINAGE STATEMENT ADDRESSING LEICESTERSHIRE COUNTY COUNCIL LEAD LOCAL FLOOD AUTHORITY OBJECTION DATED 7TH November 2025

DATE 11th November 2025

SUBJECT Drainage Statement in response to Leicestershire County Council LLFA Objection dated 7th November 2025.

PROJECT Land East of the Windmill Inn, Brascote Lane, Newbold Verdon
Application Type: Full
Planning Application Number: 25/00356/DISCON
LLFA Reference Number: 2025/0356/04/FDis16/R4

INTRODUCTION

This Drainage Statement sets out replies to the consultee objection received from the Lead Local Flood Authority (Leicestershire County Council) dated 7th November 2025.

Each point is addressed separately to allow the objection to be removed.

LEICESTERSHIRE COUNTY COUNCIL LLFA CONSULTEE RESPONSE / TRAVIS BAKER TECHNICAL COMMENTRY

LLFA Comment 1:

Private Drainage Levels:

- As previously advised – Private drainage levels for Plots 42 to 45 are below the top water level of the receiving manhole S20 (following amendments, this has increased further to 127.030mAOD). Adjacent FFL's are set at between 126.80 and 127.00.

To address this, the private drainage layout has been revised so that these plots now discharge to manhole S21, which has a lower TWL (126.486mAOD) and is more suitable for the drainage design. Supporting documentation, including the updated private drainage layout, drainage calculations, and drainage layout, have been provided in the appendices.

Appendices:

Appendix 1 – Private Drainage

Appendix 2 – Drainage Calculations

Appendix 3 – Drainage Layout

APPENDIX 1 – Private Drainage



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KEY

- S106.72 PRIVATE STORM DRAINAGE
- F107.60 PRIVATE FOUL DRAINAGE
- PROPOSED S104 FOUL SEWER
- PROPOSED S104 SURFACE WATER SEWER
- PROPOSED SURFACE WATER LATERAL
- PROPOSED FOUL WATER LATERAL
- ACO DRAINAGE
- PRIVATE GULLY
- ALTERNATE RWP POSITION

E	POND ARRANGEMENT AMENDED.	15.10.25	CL	TW
D	POND FOOTPRINT UPDATED.	16.09.25	CL	TW
C	PRIVATE DRAINAGE UPDATED BASED ON THE COMMENTS GIVEN.	28.07.25	CL	TW
B	UPDATED RWP POSITIONS ACCORDING TO MARK UPS	16.04.25	CL	TW
A	PRIVATE DRAINAGE UPDATED TO SUIT LATEST SITE LAYOUT	14.03.25	NE	TW

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CLIENT
PERSIMMON HOMES

PROJECT
**BRASCOTE LANE, NEWBOLD
VERDON**

TITLE
**PRIVATE DRAINAGE
SH 1 OF 6**

DRAWN NE	AUTHORISED TW	SCALE 1/250@A1	DATE 12.12.24
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PROJECT NO. 23042	DRAWING NO. 150	REV E
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STATUS.
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- PRIVATE GULLY

C	PRIVATE DRAINAGE UPDATED BASED ON THE COMMENTS GIVEN.	28.07.25	NE	TW
B	UPDATED RWP POSITIONS ACCORDING TO MARK	16.04.25	CL	TW
UPS	PRIVATE DRAINAGE UPDATED TO SUIT LATEST SITE LAYOUT	14.03.25	NE	TW
A	LAYOUT			



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PRIVATE DRAINAGE
SH 2 OF 6

DRAWN	AUTHORISED	SCALE	DATE
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PROJECT NO.	DRAWING NO.	REV
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D	PRIVATE DRAINAGE ROUTES FOR PLOTS 42-45	16.09.25	CL	TW
C	UPDATED TO SUIT DRAINAGE AREA PLAN.	28.07.25	NE	TW
B	PRIVATE DRAINAGE UPDATED BASED ON THE COMMENTS GIVEN.	16.04.25	CL	TW
A	UPDATED RWP POSITIONS ACCORDING TO MARK UPS.	14.03.25	NE	TW
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REV	DESCRIPTION	DATE	BY	AUTH

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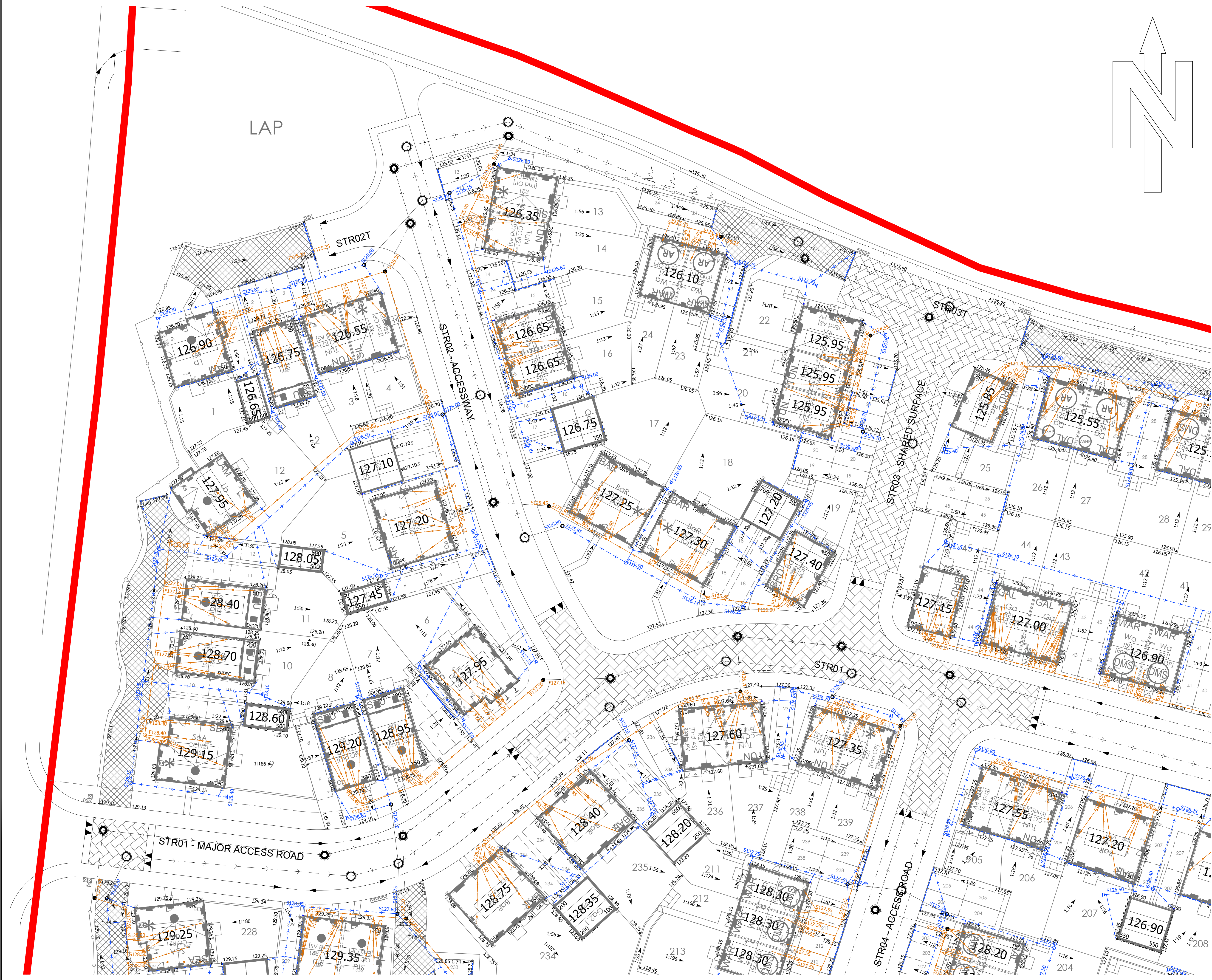
TITLE
PRIVATE DRAINAGE
SH3 OF 6

DRAWN NE	AUTHORISED TW	SCALE 1/250@A1	DATE 12.12.24
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C	PRIVATE DRAINAGE UPDATED BASED ON THE COMMENTS GIVEN.	29.07.25	NE	TW
B	UPDATED RWP POSITIONS ACCORDING TO MARK UPS.	16.04.25	CL	TW
A	PRIVATE DRAINAGE UPDATED FOR WEST OF SITE	21.03.25	CN	TW
REV	DESCRIPTION	DATE	BY	AUTH

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APPENDIX 2 – Drainage Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	0.0
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)	9.900
Ratio-R	0.400	Preferred Cover Depth (m)	1.500
CV	0.750	Include Intermediate Ground	✓
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	0.058	5.00	127.094	1500	444485.781	303189.608	1.667
2	0.154	5.00	126.571	1200	444479.395	303210.152	1.725
3	0.133	5.00	125.862	1500	444471.061	303238.171	1.462
4	0.011	5.00	125.667	1500	444468.767	303245.883	1.367
5			125.620	1500	444483.379	303249.457	1.370
6			125.650	1500	444525.141	303232.212	1.550
29	0.083	5.00	126.145	1200	444541.643	303203.190	1.577
7	0.032	5.00	125.300	1500	444546.879	303222.872	1.300
8	0.116	5.00	125.300	1500	444603.384	303207.131	1.730
30	0.085	5.00	125.494	1200	444631.274	303178.732	1.694
9	0.027	5.00	124.896	1500	444634.455	303202.730	1.424
10	0.066	5.00	124.609	1500	444637.537	303216.972	1.183
11	0.065	5.00	124.800	1500	444656.504	303212.856	1.435
14	0.106	5.00	129.125	1500	444428.409	303143.683	1.845
15	0.030	5.00	129.124	1200	444460.760	303140.872	2.040
16	0.102	5.00	128.943	1200	444467.587	303142.714	1.901
17	0.109	5.00	127.804	1200	444497.955	303165.221	2.033
18	0.016	5.00	127.400	1200	444514.760	303171.825	1.977
19	0.036	5.00	127.200	1200	444532.838	303170.093	1.876
31	0.089	5.00	128.330	1200	444533.630	303118.685	1.603
32	0.124	5.00	127.696	1200	444540.028	303138.871	2.335
20	0.072	5.00	127.030	1200	444548.594	303165.897	1.986
21	0.147	5.00	126.486	1200	444594.569	303153.726	1.800
22	0.164	5.00	126.320	1200	444611.276	303151.478	1.803
23	0.024	5.00	126.210	1500	444629.731	303151.977	1.985
24	0.042	5.00	125.822	1500	444667.738	303153.224	1.992
25	0.222	5.00	125.470	1500	444685.200	303149.460	1.770
35	0.086	5.00	129.230	1200	444486.946	303073.647	1.677
36	0.045	5.00	129.045	1200	444500.876	303075.127	1.732
37	0.085	5.00	128.730	1200	444522.806	303074.452	1.948
38	0.024	5.00	127.872	1200	444585.696	303071.197	1.725
39	0.029	5.00	127.679	1200	444604.609	303073.736	1.800
40	0.008	5.00	127.620	1200	444612.845	303080.832	1.831
41	0.141	5.00	127.550	1200	444619.154	303087.998	2.058
42	0.014	5.00	127.075	1200	444642.770	303080.688	1.876
43	0.013	5.00	126.750	1200	444660.579	303073.653	1.886
44	0.109	5.00	126.520	1200	444671.451	303071.131	1.800
48	0.012	5.00	129.120	1500	444482.776	303054.115	1.763
50	0.082	5.00	128.863	1200	444482.218	303027.542	1.921
51	0.009	5.00	128.725	1200	444490.127	303018.649	1.979
52	0.011	5.00	128.618	1200	444499.726	303015.460	1.915

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
53	0.059	5.00	128.243	1200	444536.426	303013.682	1.926
54	0.025	5.00	128.050	1200	444563.169	303016.054	1.997
55	0.173	5.00	127.600	1200	444600.463	303014.284	1.986
60	0.064	5.00	127.250	1500	444611.895	303051.790	1.577
56	0.041	5.00	127.480	1200	444609.468	303018.844	2.079
57	0.052	5.00	126.865	1500	444622.809	303010.871	1.984
58	0.048	5.00	126.827	1500	444669.160	303011.875	2.051
59			126.488	1500	444677.679	303042.183	1.988
45			126.112	1500	444688.472	303061.997	1.712
46			125.500	1500	444697.607	303068.968	1.400
47			125.500	1500	444708.811	303116.704	1.500
26	0.041	5.00	125.200	1500	444717.046	303132.090	1.950
27			124.550	1500	444722.039	303147.899	1.400
28			124.550	1500	444712.403	303178.518	1.500
12			124.550	1500	444688.754	303229.478	1.598
13			123.740	1500	444690.490	303237.624	0.800
47a			125.500	1500	444704.749	303125.200	1.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	21.514	0.600	125.427	124.846	0.581	37.0	225	5.17	0.0
1.001	2	3	29.232	0.600	124.846	124.400	0.446	65.5	225	5.47	0.0
1.002	3	4	8.046	0.600	124.400	124.300	0.100	80.5	225	5.56	0.0
1.003	4	5	15.043	0.600	124.300	124.250	0.050	300.9	375	5.80	0.0
1.004	5	6	45.182	0.600	124.250	124.100	0.150	301.2	375	6.53	0.0
1.005	6	7	23.660	0.600	124.100	124.000	0.100	236.6	375	6.86	0.0
3.000	29	7	20.367	0.600	124.568	124.000	0.568	35.9	225	5.15	0.0
1.006	7	8	58.657	0.600	124.000	123.645	0.355	165.2	375	7.56	0.0
1.007	8	9	31.381	0.600	123.570	123.472	0.098	320.2	450	8.02	0.0
4.000	30	9	24.208	0.600	123.800	123.697	0.103	235.0	225	5.48	0.0
1.008	9	10	14.572	0.600	123.472	123.426	0.046	316.8	450	8.23	0.0
1.009	10	11	19.408	0.600	123.426	123.365	0.061	318.2	450	8.52	0.0
1.010	11	12	36.282	0.600	123.365	123.165	0.200	181.4	450	8.92	0.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.156	85.7	0.0	1.442	1.500	0.058	0.0	0	0.000
1.001	1.618	64.3	0.0	1.500	1.237	0.212	0.0	0	0.000
1.002	1.459	58.0	0.0	1.237	1.142	0.345	0.0	0	0.000
1.003	1.039	114.8	0.0	0.992	0.995	0.356	0.0	0	0.000
1.004	1.038	114.7	0.0	0.995	1.175	0.356	0.0	0	0.000
1.005	1.173	129.6	0.0	1.175	0.925	0.356	0.0	0	0.000
3.000	2.191	87.1	0.0	1.352	1.075	0.083	0.0	0	0.000
1.006	1.407	155.3	0.0	0.925	1.280	0.471	0.0	0	0.000
1.007	1.130	179.8	0.0	1.280	0.974	0.587	0.0	0	0.000
4.000	0.848	33.7	0.0	1.469	0.974	0.085	0.0	0	0.000
1.008	1.137	180.8	0.0	0.974	0.733	0.699	0.0	0	0.000
1.009	1.134	180.4	0.0	0.733	0.985	0.765	0.0	0	0.000
1.010	1.506	239.5	0.0	0.985	0.935	0.830	0.0	0	0.000

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)
2.000	14	15	32.473	0.600	127.280	127.084	0.196	165.7	300	5.44	0.0
2.001	15	16	7.071	0.600	127.084	127.042	0.042	168.4	300	5.54	0.0
2.002	16	17	37.799	0.600	127.042	125.771	1.271	29.7	300	5.76	0.0
2.003	17	18	18.056	0.600	125.771	125.498	0.273	66.1	300	5.91	0.0
2.004	18	19	18.161	0.600	125.423	125.324	0.099	183.4	375	6.14	0.0
2.005	19	20	16.305	0.600	125.324	125.044	0.280	58.2	375	6.26	0.0
5.000	31	32	21.176	0.600	126.727	125.361	1.366	15.5	225	5.11	0.0
5.001	32	20	28.351	0.600	125.361	125.194	0.167	169.8	225	5.58	0.0
2.006	20	21	47.559	0.600	125.044	124.686	0.358	132.8	375	6.76	0.0
2.007	21	22	16.858	0.600	124.686	124.517	0.169	99.7	375	6.92	0.0
2.008	22	23	18.462	0.600	124.517	124.225	0.292	63.2	375	7.05	0.0
2.009	23	24	38.027	0.600	124.225	123.905	0.320	118.8	375	7.43	0.0
2.010	24	25	17.863	0.600	123.830	123.700	0.130	137.4	450	7.60	0.0
2.011	25	26	36.275	0.600	123.700	123.400	0.300	120.9	450	7.93	0.0
7.000	35	36	14.008	0.600	127.553	127.313	0.240	58.4	225	5.14	0.0
7.001	36	37	21.940	0.600	127.313	126.857	0.456	48.1	225	5.33	0.0
7.002	37	38	62.974	0.600	126.782	126.147	0.635	99.2	300	5.99	0.0
7.003	38	39	19.083	0.600	126.147	125.879	0.268	71.2	300	6.17	0.0
7.004	39	40	10.871	0.600	125.879	125.789	0.090	120.8	300	6.29	0.0
7.005	40	41	9.548	0.600	125.789	125.492	0.297	32.1	300	6.35	0.0
7.006	41	42	24.721	0.600	125.492	125.199	0.293	84.4	300	6.59	0.0
7.007	42	43	19.148	0.600	125.199	124.939	0.260	73.6	300	6.76	0.0
7.008	43	44	11.161	0.600	124.864	124.720	0.144	77.5	375	6.85	0.0
7.009	44	45	19.317	0.600	124.720	124.475	0.245	78.8	375	7.01	0.0

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)
2.000	1.218	86.1	0.0	1.545	1.740	0.106	0.0	0	0.000
2.001	1.209	85.4	0.0	1.740	1.601	0.136	0.0	0	0.000
2.002	2.893	204.5	0.0	1.601	1.733	0.238	0.0	0	0.000
2.003	1.936	136.8	0.0	1.733	1.602	0.347	0.0	0	0.000
2.004	1.334	147.4	0.0	1.602	1.501	0.363	0.0	0	0.000
2.005	2.378	262.6	0.0	1.501	1.611	0.399	0.0	0	0.000
5.000	3.340	132.8	0.0	1.378	2.110	0.089	0.0	0	0.000
5.001	1.000	39.8	0.0	2.110	1.611	0.213	0.0	0	0.000
2.006	1.570	173.4	0.0	1.611	1.425	0.684	0.0	0	0.000
2.007	1.814	200.3	0.0	1.425	1.428	0.831	0.0	0	0.000
2.008	2.282	252.0	0.0	1.428	1.610	0.995	0.0	0	0.000
2.009	1.661	183.4	0.0	1.610	1.542	1.019	0.0	0	0.000
2.010	1.732	275.5	0.0	1.542	1.320	1.061	0.0	0	0.000
2.011	1.847	293.8	0.0	1.320	1.350	1.283	0.0	0	0.000
7.000	1.715	68.2	0.0	1.452	1.507	0.086	0.0	0	0.000
7.001	1.890	75.2	0.0	1.507	1.648	0.131	0.0	0	0.000
7.002	1.579	111.6	0.0	1.648	1.425	0.216	0.0	0	0.000
7.003	1.865	131.8	0.0	1.425	1.500	0.240	0.0	0	0.000
7.004	1.429	101.0	0.0	1.500	1.531	0.269	0.0	0	0.000
7.005	2.782	196.7	0.0	1.531	1.758	0.277	0.0	0	0.000
7.006	1.712	121.0	0.0	1.758	1.576	0.418	0.0	0	0.000
7.007	1.834	129.6	0.0	1.576	1.511	0.432	0.0	0	0.000
7.008	2.059	227.5	0.0	1.511	1.425	0.445	0.0	0	0.000
7.009	2.042	225.5	0.0	1.425	1.262	0.554	0.0	0	0.000

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)
8.000	48	50	26.579	0.600	127.357	126.942	0.415	64.0	225	5.27	0.0
8.002	50	51	11.901	0.600	126.942	126.821	0.121	98.4	225	5.42	0.0
8.003	51	52	10.115	0.600	126.746	126.703	0.043	235.2	300	5.59	0.0
8.004	52	53	36.743	0.600	126.703	126.317	0.386	95.2	300	5.97	0.0
8.005	53	54	26.848	0.600	126.317	126.053	0.264	101.7	300	6.25	0.0
8.006	54	55	37.336	0.600	126.053	125.614	0.439	85.0	300	6.62	0.0
8.007	55	56	10.094	0.600	125.614	125.401	0.213	47.4	300	6.69	0.0
9.000	60	56	33.035	0.600	125.673	125.476	0.197	167.7	225	5.55	0.0
8.008	56	57	15.542	0.600	125.401	125.031	0.370	42.0	300	6.80	0.0
8.009	57	58	46.362	0.600	124.881	124.776	0.105	441.5	450	7.60	0.0
8.010	58	59	31.483	0.600	124.776	124.500	0.276	114.1	450	7.88	0.0
8.011	59	45	22.563	0.600	124.500	124.400	0.100	225.6	450	8.16	0.0
7.010	45	46	11.491	0.600	124.400	124.250	0.150	76.6	450	8.24	0.0
7.011	46	47	49.033	0.600	124.100	124.000	0.100	490.3	600	8.99	0.0
7.012	47	47a	9.417	0.600	124.000	123.900	0.100	94.2	600	9.05	0.0
7.012b	47a	26	14.096	0.600	123.900	123.325	0.575	24.5	600	9.10	0.0
2.012	26	27	16.579	0.600	123.250	123.150	0.100	165.8	600	9.24	0.0
2.013	27	28	32.099	0.600	123.150	123.050	0.100	321.0	675	9.61	0.0
2.014	28	12	56.180	0.600	123.050	122.952	0.098	573.3	675	10.47	0.0
1.011	12	13	8.329	0.600	122.952	122.940	0.012	694.1	600	10.62	0.0

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)
8.000	1.637	65.1	0.0	1.538	1.696	0.012	0.0	0	0.000
8.002	1.318	52.4	0.0	1.696	1.679	0.094	0.0	0	0.000
8.003	1.021	72.1	0.0	1.679	1.615	0.103	0.0	0	0.000
8.004	1.611	113.9	0.0	1.615	1.626	0.114	0.0	0	0.000
8.005	1.559	110.2	0.0	1.626	1.697	0.173	0.0	0	0.000
8.006	1.706	120.6	0.0	1.697	1.686	0.198	0.0	0	0.000
8.007	2.289	161.8	0.0	1.686	1.779	0.371	0.0	0	0.000
9.000	1.007	40.0	0.0	1.352	1.779	0.064	0.0	0	0.000
8.008	2.432	171.9	0.0	1.779	1.534	0.476	0.0	0	0.000
8.009	0.961	152.8	0.0	1.534	1.601	0.528	0.0	0	0.000
8.010	1.902	302.6	0.0	1.601	1.538	0.576	0.0	0	0.000
8.011	1.349	214.6	0.0	1.538	1.262	0.576	0.0	0	0.000
7.010	2.324	369.7	0.0	1.262	0.800	1.130	0.0	0	0.000
7.011	1.093	309.0	0.0	0.800	0.900	1.130	0.0	0	0.000
7.012	2.510	709.6	0.0	0.900	1.000	1.130	0.0	0	0.000
7.012b	4.931	1394.2	0.0	1.000	1.275	1.130	0.0	0	0.000
2.012	1.888	533.9	0.0	1.350	0.800	2.454	0.0	0	0.000
2.013	1.457	521.4	0.0	0.725	0.825	2.454	0.0	0	0.000
2.014	1.087	389.0	0.0	0.825	0.923	2.454	0.0	0	0.000
1.011	0.916	259.1	0.0	0.998	0.200	3.284	0.0	0	0.000

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	21.514	37.0	225	Circular_Default Sewer Type	127.094	125.427	1.442	126.571	124.846	1.500
1.001	29.232	65.5	225	Circular_Default Sewer Type	126.571	124.846	1.500	125.862	124.400	1.237
1.002	8.046	80.5	225	Circular_Default Sewer Type	125.862	124.400	1.237	125.667	124.300	1.142
1.003	15.043	300.9	375	Circular_Default Sewer Type	125.667	124.300	0.992	125.620	124.250	0.995
1.004	45.182	301.2	375	Circular_Default Sewer Type	125.620	124.250	0.995	125.650	124.100	1.175
1.005	23.660	236.6	375	Circular_Default Sewer Type	125.650	124.100	1.175	125.300	124.000	0.925
3.000	20.367	35.9	225	Circular_Default Sewer Type	126.145	124.568	1.352	125.300	124.000	1.075
1.006	58.657	165.2	375	Circular_Default Sewer Type	125.300	124.000	0.925	125.300	123.645	1.280
1.007	31.381	320.2	450	Circular_Default Sewer Type	125.300	123.570	1.280	124.896	123.472	0.974
4.000	24.208	235.0	225	Circular_Default Sewer Type	125.494	123.800	1.469	124.896	123.697	0.974
1.008	14.572	316.8	450	Circular_Default Sewer Type	124.896	123.472	0.974	124.609	123.426	0.733
1.009	19.408	318.2	450	Circular_Default Sewer Type	124.609	123.426	0.733	124.800	123.365	0.985
1.010	36.282	181.4	450	Circular_Default Sewer Type	124.800	123.365	0.985	124.550	123.165	0.935
2.000	32.473	165.7	300	Circular_Default Sewer Type	129.125	127.280	1.545	129.124	127.084	1.740
2.001	7.071	168.4	300	Circular_Default Sewer Type	129.124	127.084	1.740	128.943	127.042	1.601
2.002	37.799	29.7	300	Circular_Default Sewer Type	128.943	127.042	1.601	127.804	125.771	1.733
2.003	18.056	66.1	300	Circular_Default Sewer Type	127.804	125.771	1.733	127.400	125.498	1.602
2.004	18.161	183.4	375	Circular_Default Sewer Type	127.400	125.423	1.602	127.200	125.324	1.501
2.005	16.305	58.2	375	Circular_Default Sewer Type	127.200	125.324	1.501	127.030	125.044	1.611
5.000	21.176	15.5	225	Circular_Default Sewer Type	128.330	126.727	1.378	127.696	125.361	2.110
5.001	28.351	169.8	225	Circular_Default Sewer Type	127.696	125.361	2.110	127.030	125.194	1.611
2.006	47.559	132.8	375	Circular_Default Sewer Type	127.030	125.044	1.611	126.486	124.686	1.425
2.007	16.858	99.7	375	Circular_Default Sewer Type	126.486	124.686	1.425	126.320	124.517	1.428
2.008	18.462	63.2	375	Circular_Default Sewer Type	126.320	124.517	1.428	126.210	124.225	1.610
2.009	38.027	118.8	375	Circular_Default Sewer Type	126.210	124.225	1.610	125.822	123.905	1.542

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1500	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	3	1500	Manhole	Adoptable
1.002	3	1500	Manhole	Adoptable	4	1500	Manhole	Adoptable
1.003	4	1500	Manhole	Adoptable	5	1500	Manhole	Adoptable
1.004	5	1500	Manhole	Adoptable	6	1500	Manhole	Adoptable
1.005	6	1500	Manhole	Adoptable	7	1500	Manhole	Adoptable
3.000	29	1200	Manhole	Adoptable	7	1500	Manhole	Adoptable
1.006	7	1500	Manhole	Adoptable	8	1500	Manhole	Adoptable
1.007	8	1500	Manhole	Adoptable	9	1500	Manhole	Adoptable
4.000	30	1200	Manhole	Adoptable	9	1500	Manhole	Adoptable
1.008	9	1500	Manhole	Adoptable	10	1500	Manhole	Adoptable
1.009	10	1500	Manhole	Adoptable	11	1500	Manhole	Adoptable
1.010	11	1500	Manhole	Adoptable	12	1500	Manhole	Adoptable
2.000	14	1500	Manhole	Adoptable	15	1200	Manhole	Adoptable
2.001	15	1200	Manhole	Adoptable	16	1200	Manhole	Adoptable
2.002	16	1200	Manhole	Adoptable	17	1200	Manhole	Adoptable
2.003	17	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
2.004	18	1200	Manhole	Adoptable	19	1200	Manhole	Adoptable
2.005	19	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
5.000	31	1200	Manhole	Adoptable	32	1200	Manhole	Adoptable
5.001	32	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
2.006	20	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
2.007	21	1200	Manhole	Adoptable	22	1200	Manhole	Adoptable
2.008	22	1200	Manhole	Adoptable	23	1500	Manhole	Adoptable
2.009	23	1500	Manhole	Adoptable	24	1500	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)
2.010	17.863	137.4	450	Circular_Default Sewer Type	125.822	123.830	1.542	125.470	123.700	1.320
2.011	36.275	120.9	450	Circular_Default Sewer Type	125.470	123.700	1.320	125.200	123.400	1.350
7.000	14.008	58.4	225	Circular_Default Sewer Type	129.230	127.553	1.452	129.045	127.313	1.507
7.001	21.940	48.1	225	Circular_Default Sewer Type	129.045	127.313	1.507	128.730	126.857	1.648
7.002	62.974	99.2	300	Circular_Default Sewer Type	128.730	126.782	1.648	127.872	126.147	1.425
7.003	19.083	71.2	300	Circular_Default Sewer Type	127.872	126.147	1.425	127.679	125.879	1.500
7.004	10.871	120.8	300	Circular_Default Sewer Type	127.679	125.879	1.500	127.620	125.789	1.531
7.005	9.548	32.1	300	Circular_Default Sewer Type	127.620	125.789	1.531	127.550	125.492	1.758
7.006	24.721	84.4	300	Circular_Default Sewer Type	127.550	125.492	1.758	127.075	125.199	1.576
7.007	19.148	73.6	300	Circular_Default Sewer Type	127.075	125.199	1.576	126.750	124.939	1.511
7.008	11.161	77.5	375	Circular_Default Sewer Type	126.750	124.864	1.511	126.520	124.720	1.425
7.009	19.317	78.8	375	Circular_Default Sewer Type	126.520	124.720	1.425	126.112	124.475	1.262
8.000	26.579	64.0	225	Circular_Default Sewer Type	129.120	127.357	1.538	128.863	126.942	1.696
8.002	11.901	98.4	225	Circular_Default Sewer Type	128.863	126.942	1.696	128.725	126.821	1.679
8.003	10.115	235.2	300	Circular_Default Sewer Type	128.725	126.746	1.679	128.618	126.703	1.615
8.004	36.743	95.2	300	Circular_Default Sewer Type	128.618	126.703	1.615	128.243	126.317	1.626
8.005	26.848	101.7	300	Circular_Default Sewer Type	128.243	126.317	1.626	128.050	126.053	1.697
8.006	37.336	85.0	300	Circular_Default Sewer Type	128.050	126.053	1.697	127.600	125.614	1.686
8.007	10.094	47.4	300	Circular_Default Sewer Type	127.600	125.614	1.686	127.480	125.401	1.779
9.000	33.035	167.7	225	Circular_Default Sewer Type	127.250	125.673	1.352	127.480	125.476	1.779
8.008	15.542	42.0	300	Circular_Default Sewer Type	127.480	125.401	1.779	126.865	125.031	1.534
8.009	46.362	441.5	450	Circular_Default Sewer Type	126.865	124.881	1.534	126.827	124.776	1.601
8.010	31.483	114.1	450	Circular_Default Sewer Type	126.827	124.776	1.601	126.488	124.500	1.538
8.011	22.563	225.6	450	Circular_Default Sewer Type	126.488	124.500	1.538	126.112	124.400	1.262
7.010	11.491	76.6	450	Circular_Default Sewer Type	126.112	124.400	1.262	125.500	124.250	0.800

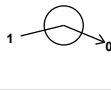
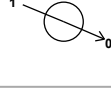
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.010	24	1500	Manhole	Adoptable	25	1500	Manhole	Adoptable
2.011	25	1500	Manhole	Adoptable	26	1500	Manhole	Adoptable
7.000	35	1200	Manhole	Adoptable	36	1200	Manhole	Adoptable
7.001	36	1200	Manhole	Adoptable	37	1200	Manhole	Adoptable
7.002	37	1200	Manhole	Adoptable	38	1200	Manhole	Adoptable
7.003	38	1200	Manhole	Adoptable	39	1200	Manhole	Adoptable
7.004	39	1200	Manhole	Adoptable	40	1200	Manhole	Adoptable
7.005	40	1200	Manhole	Adoptable	41	1200	Manhole	Adoptable
7.006	41	1200	Manhole	Adoptable	42	1200	Manhole	Adoptable
7.007	42	1200	Manhole	Adoptable	43	1200	Manhole	Adoptable
7.008	43	1200	Manhole	Adoptable	44	1200	Manhole	Adoptable
7.009	44	1200	Manhole	Adoptable	45	1500	Manhole	Adoptable
8.000	48	1500	Manhole	Adoptable	50	1200	Manhole	Adoptable
8.002	50	1200	Manhole	Adoptable	51	1200	Manhole	Adoptable
8.003	51	1200	Manhole	Adoptable	52	1200	Manhole	Adoptable
8.004	52	1200	Manhole	Adoptable	53	1200	Manhole	Adoptable
8.005	53	1200	Manhole	Adoptable	54	1200	Manhole	Adoptable
8.006	54	1200	Manhole	Adoptable	55	1200	Manhole	Adoptable
8.007	55	1200	Manhole	Adoptable	56	1200	Manhole	Adoptable
9.000	60	1500	Manhole	Adoptable	56	1200	Manhole	Adoptable
8.008	56	1200	Manhole	Adoptable	57	1500	Manhole	Adoptable
8.009	57	1500	Manhole	Adoptable	58	1500	Manhole	Adoptable
8.010	58	1500	Manhole	Adoptable	59	1500	Manhole	Adoptable
8.011	59	1500	Manhole	Adoptable	45	1500	Manhole	Adoptable
7.010	45	1500	Manhole	Adoptable	46	1500	Manhole	Adoptable

Pipeline Schedule

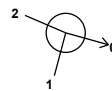
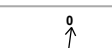
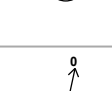
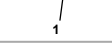
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.011	49.033	490.3	600	Circular_Default Sewer Type	125.500	124.100	0.800	125.500	124.000	0.900
7.012	9.417	94.2	600	Circular_Default Sewer Type	125.500	124.000	0.900	125.500	123.900	1.000
7.012b	14.096	24.5	600	Circular_Default Sewer Type	125.500	123.900	1.000	125.200	123.325	1.275
2.012	16.579	165.8	600	Circular_Default Sewer Type	125.200	123.250	1.350	124.550	123.150	0.800
2.013	32.099	321.0	675	Circular_Default Sewer Type	124.550	123.150	0.725	124.550	123.050	0.825
2.014	56.180	573.3	675	Circular_Default Sewer Type	124.550	123.050	0.825	124.550	122.952	0.923
1.011	8.329	694.1	600	Circular_Default Sewer Type	124.550	122.952	0.998	123.740	122.940	0.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.011	46	1500	Manhole	Adoptable	47	1500	Manhole	Adoptable
7.012	47	1500	Manhole	Adoptable	47a	1500	Manhole	Adoptable
7.012b	47a	1500	Manhole	Adoptable	26	1500	Manhole	Adoptable
2.012	26	1500	Manhole	Adoptable	27	1500	Manhole	Adoptable
2.013	27	1500	Manhole	Adoptable	28	1500	Manhole	Adoptable
2.014	28	1500	Manhole	Adoptable	12	1500	Manhole	Adoptable
1.011	12	1500	Manhole	Adoptable	13	1500	Manhole	Adoptable

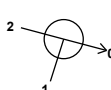
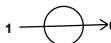
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	444485.781	303189.608	127.094	1.667	1500					
						0	1.000	125.427	225	
2	444479.395	303210.152	126.571	1.725	1200		1	1.000	124.846	225
						0	1.001	124.846	225	
3	444471.061	303238.171	125.862	1.462	1500		1	1.001	124.400	225
						0	1.002	124.400	225	
4	444468.767	303245.883	125.667	1.367	1500		1	1.002	124.300	225
						0	1.003	124.300	375	
5	444483.379	303249.457	125.620	1.370	1500		1	1.003	124.250	375
						0	1.004	124.250	375	
6	444525.141	303232.212	125.650	1.550	1500		1	1.004	124.100	375
						0	1.005	124.100	375	
29	444541.643	303203.190	126.145	1.577	1200					
						0	3.000	124.568	225	

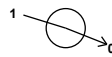
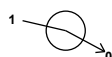
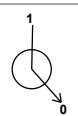
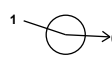
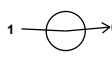
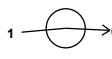
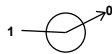
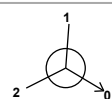
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
7	444546.879	303222.872	125.300	1.300	1500		1	3.000	124.000	225
							2	1.005	124.000	375
							0	1.006	124.000	375
8	444603.384	303207.131	125.300	1.730	1500		1	1.006	123.645	375
							0	1.007	123.570	450
30	444631.274	303178.732	125.494	1.694	1200		0	4.000	123.800	225
9	444634.455	303202.730	124.896	1.424	1500		1	4.000	123.697	225
							2	1.007	123.472	450
							0	1.008	123.472	450
10	444637.537	303216.972	124.609	1.183	1500		1	1.008	123.426	450
							0	1.009	123.426	450
11	444656.504	303212.856	124.800	1.435	1500		1	1.009	123.365	450
							0	1.010	123.365	450
14	444428.409	303143.683	129.125	1.845	1500		0	2.000	127.280	300
							1	2.000	127.084	300
15	444460.760	303140.872	129.124	2.040	1200		0	2.001	127.084	300
							1	2.001	127.042	300
16	444467.587	303142.714	128.943	1.901	1200		0	2.002	127.042	300
							1	2.002	125.771	300
17	444497.955	303165.221	127.804	2.033	1200		0	2.003	125.771	300
							1	2.003	125.498	300
18	444514.760	303171.825	127.400	1.977	1200		0	2.004	125.423	375
							1	2.004	125.324	375
19	444532.838	303170.093	127.200	1.876	1200		0	2.005	125.324	375
							0	5.000	126.727	225
31	444533.630	303118.685	128.330	1.603	1200		0	5.000	126.727	225

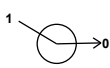
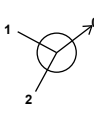
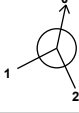
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
32	444540.028	303138.871	127.696	2.335	1200		1	5.000	125.361	225
20	444548.594	303165.897	127.030	1.986	1200		0	5.001	125.361	225
							1	5.001	125.194	225
							2	2.005	125.044	375
21	444594.569	303153.726	126.486	1.800	1200		0	2.006	125.044	375
							1	2.006	124.686	375
22	444611.276	303151.478	126.320	1.803	1200		0	2.007	124.686	375
							1	2.007	124.517	375
23	444629.731	303151.977	126.210	1.985	1500		0	2.008	124.517	375
							1	2.008	124.225	375
24	444667.738	303153.224	125.822	1.992	1500		0	2.009	124.225	375
							1	2.009	123.905	375
25	444685.200	303149.460	125.470	1.770	1500		0	2.010	123.830	450
							1	2.010	123.700	450
35	444486.946	303073.647	129.230	1.677	1200		0	2.011	123.700	450
							0	7.000	127.553	225
36	444500.876	303075.127	129.045	1.732	1200		1	7.000	127.313	225
							0	7.001	127.313	225
37	444522.806	303074.452	128.730	1.948	1200		1	7.001	126.857	225
							0	7.002	126.782	300
38	444585.696	303071.197	127.872	1.725	1200		1	7.002	126.147	300
							0	7.003	126.147	300
39	444604.609	303073.736	127.679	1.800	1200		1	7.003	125.879	300
							0	7.004	125.879	300
40	444612.845	303080.832	127.620	1.831	1200		1	7.004	125.789	300
							0	7.005	125.789	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
41	444619.154	303087.998	127.550	2.058	1200		1	7.005	125.492	300
							0	7.006	125.492	300
42	444642.770	303080.688	127.075	1.876	1200		1	7.006	125.199	300
							0	7.007	125.199	300
43	444660.579	303073.653	126.750	1.886	1200		1	7.007	124.939	300
							0	7.008	124.864	375
44	444671.451	303071.131	126.520	1.800	1200		1	7.008	124.720	375
							0	7.009	124.720	375
48	444482.776	303054.115	129.120	1.763	1500		0	8.000	127.357	225
50	444482.218	303027.542	128.863	1.921	1200		1	8.000	126.942	225
							0	8.002	126.942	225
51	444490.127	303018.649	128.725	1.979	1200		1	8.002	126.821	225
							0	8.003	126.746	300
52	444499.726	303015.460	128.618	1.915	1200		1	8.003	126.703	300
							0	8.004	126.703	300
53	444536.426	303013.682	128.243	1.926	1200		1	8.004	126.317	300
							0	8.005	126.317	300
54	444563.169	303016.054	128.050	1.997	1200		1	8.005	126.053	300
							0	8.006	126.053	300
55	444600.463	303014.284	127.600	1.986	1200		1	8.006	125.614	300
							0	8.007	125.614	300
60	444611.895	303051.790	127.250	1.577	1500		0	9.000	125.673	225
56	444609.468	303018.844	127.480	2.079	1200		1	9.000	125.476	225
							2	8.007	125.401	300
							0	8.008	125.401	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
57	444622.809	303010.871	126.865	1.984	1500		1	8.008	125.031	300
							0	8.009	124.881	450
58	444669.160	303011.875	126.827	2.051	1500		1	8.009	124.776	450
							0	8.010	124.776	450
59	444677.679	303042.183	126.488	1.988	1500		1	8.010	124.500	450
							0	8.011	124.500	450
45	444688.472	303061.997	126.112	1.712	1500		1	7.009	124.475	375
							2	8.011	124.400	450
							0	7.010	124.400	450
46	444697.607	303068.968	125.500	1.400	1500		1	7.010	124.250	450
							0	7.011	124.100	600
47	444708.811	303116.704	125.500	1.500	1500		1	7.011	124.000	600
							0	7.012	124.000	600
26	444717.046	303132.090	125.200	1.950	1500		1	2.011	123.400	450
							2	7.012b	123.325	600
							0	2.012	123.250	600
27	444722.039	303147.899	124.550	1.400	1500		1	2.012	123.150	600
							0	2.013	123.150	675
28	444712.403	303178.518	124.550	1.500	1500		1	2.013	123.050	675
							0	2.014	123.050	675
12	444688.754	303229.478	124.550	1.598	1500		1	1.010	123.165	450
							2	2.014	122.952	675
							0	1.011	122.952	600
13	444690.490	303237.624	123.740	0.800	1500		1	1.011	122.940	600
47a	444704.749	303125.200	125.500	1.600	1500		1	7.012	123.900	600
							0	7.012b	123.900	600

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	✓
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	✓
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	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		

Node 13 Surcharged Outfall

Overrides Design Area	x	Depression Storage Area (m²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		

Applies to All storms

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.260	540	0.260	1080	0.260	1620	0.260	2160	0.390	2700	0.390
60	0.260	600	0.260	1140	0.260	1680	0.260	2220	0.390	2760	0.390
120	0.260	660	0.260	1200	0.260	1740	0.260	2280	0.390	2820	0.390
180	0.260	720	0.260	1260	0.260	1800	0.260	2340	0.390	2880	0.390
240	0.260	780	0.260	1320	0.260	1860	0.260	2400	0.390		
300	0.260	840	0.260	1380	0.260	1920	0.260	2460	0.390		
360	0.260	900	0.260	1440	0.260	1980	0.390	2520	0.390		
420	0.260	960	0.260	1500	0.260	2040	0.390	2580	0.390		
480	0.260	1020	0.260	1560	0.260	2100	0.390	2640	0.390		

Node 12 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	122.952	Product Number	CTL-SHE-0212-2330-1000-2330
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	23.3	Min Node Diameter (mm)	1500

Node 47a Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	123.900	Product Number	CTL-SHE-0106-5000-1000-5000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 47a Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	124.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	0

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1039.7	0.0	1.500	1684.9	0.0	1.501	0.0	0.0

Node 12 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	123.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1131.0	0.0	1.500	1748.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	125.480	0.053	10.6	0.1304	0.0000	OK
15 minute winter	2	10	124.969	0.123	38.6	0.3596	0.0000	OK
15 minute winter	3	11	124.688	0.288	62.1	1.0335	0.0000	SURCHARGED
15 minute winter	4	11	124.518	0.218	62.5	0.4207	0.0000	OK
15 minute winter	5	11	124.455	0.205	62.6	0.3615	0.0000	OK
15 minute winter	6	12	124.297	0.197	61.8	0.3485	0.0000	OK
15 minute winter	29	10	124.631	0.063	15.1	0.1372	0.0000	OK
15 minute winter	7	12	124.195	0.195	78.9	0.4413	0.0000	OK
15 minute winter	8	12	123.832	0.262	95.8	0.8154	0.0000	OK
15 minute winter	30	10	123.909	0.109	15.5	0.2333	0.0000	OK
15 minute winter	9	12	123.770	0.298	111.4	0.6385	0.0000	OK
15 minute winter	10	12	123.711	0.285	120.3	0.8224	0.0000	OK
15 minute winter	11	12	123.613	0.248	129.1	0.6632	0.0000	OK
15 minute winter	14	10	127.377	0.097	19.3	0.2831	0.0000	OK
15 minute winter	15	10	127.199	0.115	24.5	0.1645	0.0000	OK
15 minute winter	16	10	127.134	0.092	42.5	0.2019	0.0000	OK
15 minute winter	17	11	125.924	0.153	61.9	0.3374	0.0000	OK
15 minute winter	18	11	125.605	0.182	64.2	0.2348	0.0000	OK
15 minute winter	19	11	125.471	0.147	70.7	0.2226	0.0000	OK
15 minute winter	31	10	126.780	0.053	16.2	0.1182	0.0000	OK
15 minute winter	32	11	125.546	0.185	38.7	0.4050	0.0000	OK
15 minute winter	20	11	125.288	0.244	120.9	0.4533	0.0000	OK
15 minute winter	21	11	124.966	0.280	146.7	0.7739	0.0000	OK
15 minute winter	22	11	124.791	0.274	173.6	0.8088	0.0000	OK
15 minute winter	23	12	124.543	0.318	176.5	0.6381	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)
15 minute winter	1	1.000	2	10.5	0.728	0.122	0.3159	
15 minute winter	2	1.001	3	37.9	1.095	0.589	0.9067	
15 minute winter	3	1.002	4	60.6	1.525	1.046	0.3185	
15 minute winter	4	1.003	5	62.6	0.978	0.545	0.9625	
15 minute winter	5	1.004	6	61.8	1.043	0.539	2.6791	
15 minute winter	6	1.005	7	62.0	1.062	0.478	1.3808	
15 minute winter	29	3.000	7	15.0	1.066	0.172	0.4524	
15 minute winter	7	1.006	8	79.3	1.404	0.511	3.3149	
15 minute winter	8	1.007	9	94.2	0.915	0.524	3.2500	
15 minute winter	30	4.000	9	15.0	0.831	0.445	0.4393	
15 minute winter	9	1.008	10	110.9	1.024	0.613	1.5822	
15 minute winter	10	1.009	11	119.8	1.225	0.664	1.8973	
15 minute winter	11	1.010	12	127.7	1.506	0.533	3.0938	
15 minute winter	14	2.000	15	19.0	0.850	0.220	0.7255	
15 minute winter	15	2.001	16	24.1	1.124	0.283	0.1526	
15 minute winter	16	2.002	17	42.0	1.564	0.205	1.0263	
15 minute winter	17	2.003	18	61.5	1.803	0.449	0.6160	
15 minute winter	18	2.004	19	64.5	1.390	0.438	0.8431	
15 minute winter	19	2.005	20	71.0	1.223	0.270	0.9455	
15 minute winter	31	5.000	32	16.1	0.803	0.121	0.4418	
15 minute winter	32	5.001	20	37.5	1.142	0.944	0.9297	
15 minute winter	20	2.006	21	121.5	1.477	0.701	3.9057	
15 minute winter	21	2.007	22	145.5	1.675	0.726	1.4717	
15 minute winter	22	2.008	23	172.4	1.865	0.684	1.7105	
15 minute winter	23	2.009	24	175.1	1.844	0.955	3.6038	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	24	12	124.146	0.316	181.1	0.6919	0.0000	OK
15 minute winter	25	12	124.010	0.310	215.2	1.3260	0.0000	OK
15 minute winter	35	10	127.629	0.075	15.7	0.1628	0.0000	OK
15 minute winter	36	10	127.403	0.090	23.7	0.1487	0.0000	OK
15 minute winter	37	10	126.905	0.123	38.8	0.2470	0.0000	OK
15 minute winter	38	11	126.271	0.124	42.6	0.1748	0.0000	OK
15 minute winter	39	11	126.036	0.157	48.0	0.2284	0.0000	OK
15 minute winter	40	11	125.901	0.112	49.4	0.1365	0.0000	OK
15 minute winter	41	11	125.674	0.182	73.6	0.4551	0.0000	OK
15 minute winter	42	11	125.380	0.181	76.0	0.2318	0.0000	OK
15 minute winter	43	11	125.041	0.177	78.0	0.2246	0.0000	OK
15 minute winter	44	11	124.909	0.189	96.5	0.4419	0.0000	OK
15 minute winter	48	10	127.385	0.028	2.2	0.0532	0.0000	OK
15 minute winter	50	10	127.035	0.093	17.0	0.1854	0.0000	OK
15 minute winter	51	10	126.851	0.105	18.2	0.1284	0.0000	OK
15 minute winter	52	11	126.788	0.085	20.1	0.1056	0.0000	OK
15 minute winter	53	11	126.429	0.112	30.4	0.1954	0.0000	OK
15 minute winter	54	11	126.162	0.109	34.9	0.1510	0.0000	OK
15 minute winter	55	11	125.766	0.152	64.5	0.4356	0.0000	OK
15 minute winter	60	10	125.757	0.084	11.7	0.2165	0.0000	OK
15 minute winter	56	11	125.565	0.164	83.1	0.2507	0.0000	OK
15 minute winter	57	11	125.130	0.249	92.2	0.5711	0.0000	OK
15 minute winter	58	11	124.967	0.191	100.6	0.4260	0.0000	OK
15 minute winter	59	12	124.747	0.247	98.7	0.4371	0.0000	OK
15 minute winter	45	12	124.674	0.274	192.7	0.4842	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)
15 minute winter	24	2.010	25	182.0	1.546	0.661	2.1032	
15 minute winter	25	2.011	26	216.2	1.961	0.736	3.9963	
15 minute winter	35	7.000	36	15.5	1.175	0.228	0.1855	
15 minute winter	36	7.001	37	23.3	1.630	0.311	0.3145	
15 minute winter	37	7.002	38	38.5	1.414	0.345	1.7157	
15 minute winter	38	7.003	39	43.0	1.325	0.326	0.6189	
15 minute winter	39	7.004	40	48.0	1.567	0.475	0.3335	
15 minute winter	40	7.005	41	49.4	1.459	0.251	0.3279	
15 minute winter	41	7.006	42	73.6	1.652	0.608	1.1021	
15 minute winter	42	7.007	43	75.8	1.814	0.584	0.7996	
15 minute winter	43	7.008	44	77.8	1.474	0.342	0.5951	
15 minute winter	44	7.009	45	96.3	1.752	0.427	1.0958	
15 minute winter	48	8.000	50	2.1	0.250	0.033	0.2444	
15 minute winter	50	8.002	51	16.6	1.127	0.317	0.1761	
15 minute winter	51	8.003	52	18.2	0.955	0.252	0.1934	
15 minute winter	52	8.004	53	20.2	1.006	0.177	0.7404	
15 minute winter	53	8.005	54	30.6	1.296	0.278	0.6334	
15 minute winter	54	8.006	55	34.8	1.198	0.289	1.0995	
15 minute winter	55	8.007	56	64.8	1.723	0.400	0.3796	
15 minute winter	60	9.000	56	11.3	0.834	0.283	0.4601	
15 minute winter	56	8.008	57	83.3	2.268	0.485	0.5710	
15 minute winter	57	8.009	58	92.4	1.201	0.605	3.5690	
15 minute winter	58	8.010	59	98.7	1.310	0.326	2.3965	
15 minute winter	59	8.011	45	99.9	1.056	0.466	2.1468	
15 minute winter	45	7.010	46	194.2	2.141	0.525	1.0417	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	46	12	124.426	0.326	194.2	0.5764	0.0000	OK
15 minute winter	47	12	124.247	0.247	195.5	0.4371	0.0000	OK
15 minute winter	26	12	123.585	0.335	226.5	0.7323	0.0000	OK
15 minute winter	27	12	123.493	0.343	226.8	0.6056	0.0000	OK
720 minute winter	28	495	123.395	0.345	24.9	0.6099	0.0000	OK
720 minute winter	12	495	123.395	0.443	37.2	415.9299	0.0000	OK
15 minute summer	13	1	123.200	0.260	0.0	0.0000	0.0000	OK
240 minute winter	47a	240	124.151	0.251	47.6	162.7578	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)
15 minute winter	46	7.011	47	195.5	1.471	0.633	6.5222	
15 minute winter	47	7.012	47a	194.8	2.540	0.275	0.7435	
15 minute winter	26	2.012	27	226.8	1.384	0.425	2.7180	
15 minute winter	27	2.013	28	226.7	1.273	0.435	5.7157	
720 minute winter	28	2.014	12	24.3	0.243	0.062	12.1270	
720 minute winter	12	Hydro-Brake®	13	20.0				511.2
240 minute winter	47a	Hydro-Brake®	26	5.0				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	12	125.613	0.186	20.1	0.4576	0.0000	OK
15 minute winter	2	12	125.582	0.736	73.0	2.1465	0.0000	SURCHARGED
15 minute winter	3	11	125.108	0.708	103.9	2.5382	0.0000	SURCHARGED
15 minute winter	4	12	124.620	0.320	105.1	0.6174	0.0000	OK
15 minute winter	5	12	124.548	0.298	104.6	0.5271	0.0000	OK
15 minute winter	6	13	124.390	0.290	104.2	0.5129	0.0000	OK
15 minute winter	29	10	124.656	0.088	28.7	0.1924	0.0000	OK
15 minute winter	7	12	124.298	0.298	136.2	0.6736	0.0000	OK
15 minute winter	8	12	124.077	0.507	171.6	1.5766	0.0000	SURCHARGED
15 minute winter	30	12	124.037	0.237	29.4	0.5055	0.0000	SURCHARGED
15 minute winter	9	12	123.972	0.500	193.1	1.0730	0.0000	SURCHARGED
15 minute winter	10	12	123.883	0.457	211.0	1.3187	0.0000	SURCHARGED
15 minute winter	11	12	123.752	0.387	228.7	1.0343	0.0000	OK
15 minute winter	14	10	127.420	0.140	36.7	0.4094	0.0000	OK
15 minute winter	15	10	127.250	0.166	46.5	0.2367	0.0000	OK
15 minute winter	16	10	127.172	0.130	81.1	0.2855	0.0000	OK
15 minute winter	17	12	126.674	0.903	118.1	1.9901	0.0000	SURCHARGED
15 minute winter	18	12	126.501	1.078	105.4	1.3944	0.0000	SURCHARGED
15 minute winter	19	12	126.441	1.117	115.1	1.6918	0.0000	SURCHARGED
15 minute winter	31	10	126.800	0.073	30.8	0.1641	0.0000	OK
15 minute winter	32	12	126.729	1.368	73.5	3.0006	0.0000	SURCHARGED
15 minute winter	20	12	126.374	1.330	174.3	2.4689	0.0000	SURCHARGED
15 minute winter	21	12	125.950	1.264	211.2	3.4927	0.0000	SURCHARGED
15 minute winter	22	12	125.670	1.152	252.8	3.3998	0.0000	SURCHARGED
15 minute winter	23	12	125.240	1.015	257.2	2.0395	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 winter	1	1.000	2	21.4	0.745	0.250	0.8051	
15 minute winter	2	1.001	3	61.4	1.545	0.955	1.1626	
15 minute winter	3	1.002	4	101.5	2.553	1.750	0.3200	
15 minute winter	4	1.003	5	104.6	1.085	0.911	1.4613	
15 minute winter	5	1.004	6	104.2	1.133	0.909	4.1861	
15 minute winter	6	1.005	7	102.6	1.199	0.792	2.1917	
15 minute winter	29	3.000	7	28.5	1.170	0.327	0.5516	
15 minute winter	7	1.006	8	133.9	1.353	0.862	5.9916	
15 minute winter	8	1.007	9	161.4	1.018	0.898	4.9721	
15 minute winter	30	4.000	9	28.6	0.945	0.847	0.9628	
15 minute winter	9	1.008	10	193.2	1.219	1.069	2.3088	
15 minute winter	10	1.009	11	211.1	1.367	1.170	2.9448	
15 minute winter	11	1.010	12	228.6	1.672	0.955	4.9439	
15 minute winter	14	2.000	15	36.1	0.998	0.419	1.1749	
15 minute winter	15	2.001	16	45.8	1.336	0.536	0.2444	
15 minute winter	16	2.002	17	80.4	1.745	0.393	1.8762	
15 minute winter	17	2.003	18	100.2	1.974	0.732	1.2715	
15 minute winter	18	2.004	19	103.4	1.567	0.701	2.0031	
15 minute winter	19	2.005	20	105.2	1.255	0.400	1.7984	
15 minute winter	31	5.000	32	30.6	1.010	0.231	0.5396	
15 minute winter	32	5.001	20	53.3	1.340	1.339	1.1275	
15 minute winter	20	2.006	21	175.9	1.595	1.015	5.2456	
15 minute winter	21	2.007	22	211.0	1.913	1.053	1.8594	
15 minute winter	22	2.008	23	250.7	2.273	0.995	2.0363	
15 minute winter	23	2.009	24	257.7	2.337	1.405	4.1943	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	24	12	124.461	0.631	267.4	1.3817	0.0000	SURCHARGED
15 minute winter	25	12	124.263	0.563	327.6	2.4069	0.0000	SURCHARGED
15 minute winter	35	10	127.664	0.111	29.8	0.2395	0.0000	OK
15 minute winter	36	10	127.446	0.133	45.1	0.2203	0.0000	OK
15 minute winter	37	10	126.963	0.181	73.8	0.3629	0.0000	OK
15 minute winter	38	11	126.341	0.194	80.9	0.2728	0.0000	OK
15 minute winter	39	12	126.218	0.339	92.2	0.4930	0.0000	SURCHARGED
15 minute winter	40	12	126.113	0.324	89.2	0.3947	0.0000	SURCHARGED
15 minute winter	41	12	126.009	0.517	131.9	1.2919	0.0000	SURCHARGED
15 minute winter	42	12	125.579	0.380	132.5	0.4865	0.0000	SURCHARGED
15 minute winter	43	12	125.137	0.273	136.6	0.3466	0.0000	OK
15 minute winter	44	12	125.022	0.302	170.2	0.7083	0.0000	OK
15 minute winter	48	10	127.395	0.038	4.2	0.0726	0.0000	OK
15 minute winter	50	10	127.081	0.139	32.5	0.2765	0.0000	OK
15 minute winter	51	10	126.896	0.150	34.8	0.1832	0.0000	OK
15 minute winter	52	11	126.823	0.120	38.3	0.1497	0.0000	OK
15 minute winter	53	11	126.482	0.165	58.1	0.2871	0.0000	OK
15 minute winter	54	11	126.210	0.157	66.5	0.2173	0.0000	OK
15 minute winter	55	11	125.876	0.262	123.5	0.7539	0.0000	OK
15 minute winter	60	10	125.790	0.117	22.1	0.3011	0.0000	OK
15 minute winter	56	11	125.690	0.289	157.8	0.4404	0.0000	OK
15 minute winter	57	11	125.274	0.393	174.3	0.9013	0.0000	OK
15 minute winter	58	12	125.067	0.291	189.2	0.6506	0.0000	OK
15 minute winter	59	12	124.969	0.469	187.0	0.8282	0.0000	SURCHARGED
15 minute winter	45	12	124.866	0.466	349.3	0.8228	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 winter	24	2.010	25	268.5	1.695	0.974	2.8303	
15 minute winter	25	2.011	26	328.7	2.078	1.119	5.5538	
15 minute winter	35	7.000	36	29.5	1.341	0.433	0.3083	
15 minute winter	36	7.001	37	44.4	1.899	0.591	0.5137	
15 minute winter	37	7.002	38	73.0	1.597	0.654	2.8911	
15 minute winter	38	7.003	39	82.8	1.474	0.628	1.1124	
15 minute winter	39	7.004	40	86.6	1.634	0.858	0.7655	
15 minute winter	40	7.005	41	88.8	1.513	0.452	0.6724	
15 minute winter	41	7.006	42	128.7	1.828	1.063	1.7408	
15 minute winter	42	7.007	43	133.1	2.004	1.027	1.3186	
15 minute winter	43	7.008	44	136.8	1.591	0.601	1.0115	
15 minute winter	44	7.009	45	168.8	1.831	0.748	1.9852	
15 minute winter	48	8.000	50	4.1	0.282	0.063	0.4019	
15 minute winter	50	8.002	51	31.7	1.311	0.605	0.2884	
15 minute winter	51	8.003	52	34.5	1.128	0.479	0.3104	
15 minute winter	52	8.004	53	38.6	1.173	0.339	1.2108	
15 minute winter	53	8.005	54	58.4	1.518	0.530	1.0337	
15 minute winter	54	8.006	55	66.6	1.313	0.553	1.9185	
15 minute winter	55	8.007	56	123.3	1.842	0.762	0.6810	
15 minute winter	60	9.000	56	21.7	0.845	0.541	0.9817	
15 minute winter	56	8.008	57	157.4	2.463	0.915	1.0165	
15 minute winter	57	8.009	58	173.6	1.353	1.136	5.8697	
15 minute winter	58	8.010	59	187.0	1.417	0.618	4.2015	
15 minute winter	59	8.011	45	182.9	1.157	0.853	3.5750	
15 minute winter	45	7.010	46	350.4	2.379	0.948	1.6469	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	46	12	124.585	0.485	350.4	0.8575	0.0000	OK
15 minute winter	47	12	124.347	0.347	350.1	0.6128	0.0000	OK
15 minute winter	26	12	123.702	0.452	344.6	0.9885	0.0000	OK
15 minute winter	27	12	123.595	0.445	344.8	0.7869	0.0000	OK
600 minute winter	28	450	123.592	0.542	45.7	0.9574	0.0000	OK
600 minute winter	12	450	123.592	0.640	70.8	674.7094	0.0000	SURCHARGED
15 minute summer	13	1	123.200	0.260	6.9	0.0000	0.0000	OK
360 minute winter	47a	360	124.316	0.416	99.5	350.8279	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)
15 minute winter	46	7.011	47	350.1	1.690	1.133	10.1234	
15 minute winter	47	7.012	47a	349.7	3.072	0.493	1.1587	
15 minute winter	26	2.012	27	344.8	1.526	0.646	3.7465	
15 minute winter	27	2.013	28	344.9	1.438	0.662	7.6972	
600 minute winter	28	2.014	12	44.6	0.343	0.115	18.4550	
600 minute winter	12	Hydro-Brake®	13	23.2				789.8
360 minute winter	47a	Hydro-Brake®	26	5.0				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	126.711	1.284	36.5	3.1628	0.0000	SURCHARGED
15 minute winter	2	10	126.571	1.725	126.2	5.0301	8.3042	FLOOD
15 minute winter	3	10	125.862	1.462	157.6	5.2442	9.7550	FLOOD
15 minute winter	4	12	125.454	1.154	134.8	2.2257	0.0000	FLOOD RISK
15 minute winter	5	12	125.397	1.147	130.5	2.0268	0.0000	FLOOD RISK
15 minute winter	6	12	125.263	1.163	122.4	2.0553	0.0000	SURCHARGED
15 minute winter	29	12	125.352	0.784	52.2	1.7121	0.0000	SURCHARGED
15 minute winter	7	12	125.182	1.182	159.3	2.6696	0.0000	FLOOD RISK
15 minute winter	8	12	124.751	1.181	219.7	3.6714	0.0000	SURCHARGED
15 minute winter	30	11	124.781	0.981	53.4	2.0936	0.0000	SURCHARGED
15 minute winter	9	12	124.559	1.087	276.1	2.3320	0.0000	SURCHARGED
15 minute winter	10	12	124.371	0.945	311.5	2.7252	0.0000	FLOOD RISK
15 minute winter	11	12	124.089	0.724	346.0	1.9344	0.0000	SURCHARGED
15 minute winter	14	12	128.548	1.268	66.6	3.6970	0.0000	SURCHARGED
15 minute winter	15	12	128.445	1.361	78.7	1.9395	0.0000	SURCHARGED
15 minute winter	16	12	128.386	1.344	126.8	2.9617	0.0000	SURCHARGED
15 minute winter	17	11	127.804	2.033	183.9	4.4787	4.3097	FLOOD
15 minute winter	18	11	127.364	1.941	156.3	2.5096	0.0000	FLOOD RISK
15 minute winter	19	11	127.200	1.876	177.6	2.8421	1.3664	FLOOD
15 minute winter	31	10	127.986	1.259	55.9	2.8204	0.0000	SURCHARGED
15 minute winter	32	10	127.696	2.335	130.1	5.1207	9.2889	FLOOD
15 minute winter	20	10	127.030	1.986	280.1	3.6860	21.1919	FLOOD
15 minute winter	21	10	126.486	1.800	287.7	4.9752	22.1011	FLOOD
15 minute winter	22	10	126.320	1.803	311.9	5.3189	0.0802	FLOOD
15 minute winter	23	10	125.848	1.623	289.4	3.2615	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 winter	1	1.000	2	35.1	0.883	0.410	0.8556	
15 minute winter	2	1.001	3	74.1	1.863	1.152	1.1626	
15 minute winter	3	1.002	4	128.3	3.227	2.212	0.3200	
15 minute winter	4	1.003	5	130.5	1.185	1.137	1.6592	
15 minute winter	5	1.004	6	122.4	1.144	1.067	4.9834	
15 minute winter	6	1.005	7	128.4	1.241	0.991	2.6096	
15 minute winter	29	3.000	7	43.2	1.328	0.496	0.8100	
15 minute winter	7	1.006	8	166.5	1.509	1.072	6.4697	
15 minute winter	8	1.007	9	217.6	1.374	1.210	4.9721	
15 minute winter	30	4.000	9	46.2	1.161	1.369	0.9628	
15 minute winter	9	1.008	10	277.9	1.754	1.537	2.3088	
15 minute winter	10	1.009	11	312.6	1.973	1.733	3.0751	
15 minute winter	11	1.010	12	346.7	2.191	1.448	5.5875	
15 minute winter	14	2.000	15	60.9	1.063	0.707	2.2867	
15 minute winter	15	2.001	16	73.1	1.383	0.856	0.4979	
15 minute winter	16	2.002	17	125.9	1.788	0.615	2.6618	
15 minute winter	17	2.003	18	147.7	2.098	1.080	1.2715	
15 minute winter	18	2.004	19	156.3	1.525	1.061	2.0031	
15 minute winter	19	2.005	20	164.8	1.494	0.627	1.7984	
15 minute winter	31	5.000	32	53.9	1.356	0.406	0.8422	
15 minute winter	32	5.001	20	72.7	1.828	1.827	1.1275	
15 minute winter	20	2.006	21	205.7	1.865	1.186	5.2456	
15 minute winter	21	2.007	22	239.6	2.173	1.196	1.8594	
15 minute winter	22	2.008	23	277.7	2.518	1.102	2.0363	
15 minute winter	23	2.009	24	286.7	2.599	1.563	4.1943	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	24	10	124.940	1.110	304.0	2.4302	0.0000	SURCHARGED
15 minute winter	25	10	124.689	0.989	441.5	4.2305	0.0000	SURCHARGED
15 minute winter	35	12	128.843	1.290	54.1	2.7818	0.0000	SURCHARGED
15 minute winter	36	12	128.744	1.431	75.9	2.3625	0.0000	SURCHARGED
15 minute winter	37	12	128.422	1.640	117.1	3.2875	0.0000	SURCHARGED
15 minute winter	38	12	127.872	1.725	108.0	2.4305	0.9761	FLOOD
15 minute winter	39	12	127.679	1.800	110.6	2.6154	0.6811	FLOOD
15 minute winter	40	12	127.539	1.750	116.7	2.1316	0.0000	FLOOD RISK
15 minute winter	41	12	127.399	1.907	183.7	4.7685	0.0000	FLOOD RISK
15 minute winter	42	12	126.613	1.414	180.9	1.8097	0.0000	SURCHARGED
15 minute winter	43	12	125.912	1.048	187.8	1.3296	0.0000	SURCHARGED
15 minute winter	44	12	125.737	1.017	243.8	2.3812	0.0000	SURCHARGED
15 minute winter	48	13	127.746	0.389	7.5	0.7409	0.0000	SURCHARGED
15 minute winter	50	13	127.738	0.796	58.9	1.5799	0.0000	SURCHARGED
15 minute winter	51	13	127.647	0.901	61.8	1.1012	0.0000	SURCHARGED
15 minute winter	52	13	127.621	0.918	64.4	1.1435	0.0000	SURCHARGED
15 minute winter	53	13	127.531	1.213	94.6	2.1163	0.0000	SURCHARGED
15 minute winter	54	12	127.401	1.348	94.9	1.8618	0.0000	SURCHARGED
15 minute winter	55	12	127.214	1.600	172.8	4.5966	0.0000	SURCHARGED
15 minute winter	60	12	127.010	1.337	40.2	3.4470	0.0000	FLOOD RISK
15 minute winter	56	12	126.878	1.477	207.2	2.2524	0.0000	SURCHARGED
15 minute winter	57	12	126.098	1.217	232.1	2.7876	0.0000	SURCHARGED
15 minute winter	58	12	125.801	1.024	255.3	2.2897	0.0000	SURCHARGED
15 minute winter	59	12	125.535	1.035	254.9	1.8293	0.0000	SURCHARGED
15 minute winter	45	12	125.326	0.926	496.4	1.6369	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 winter	24	2.010	25	304.6	1.923	1.106	2.8303	
15 minute winter	25	2.011	26	437.5	2.761	1.489	5.7436	
15 minute winter	35	7.000	36	49.3	1.416	0.723	0.5571	
15 minute winter	36	7.001	37	66.8	1.976	0.888	0.8726	
15 minute winter	37	7.002	38	96.2	1.651	0.862	4.4346	
15 minute winter	38	7.003	39	100.6	1.460	0.763	1.3438	
15 minute winter	39	7.004	40	114.7	1.629	1.135	0.7655	
15 minute winter	40	7.005	41	122.3	1.737	0.622	0.6724	
15 minute winter	41	7.006	42	174.0	2.471	1.437	1.7408	
15 minute winter	42	7.007	43	181.4	2.576	1.399	1.3484	
15 minute winter	43	7.008	44	188.0	1.705	0.827	1.2310	
15 minute winter	44	7.009	45	241.9	2.194	1.073	2.1306	
15 minute winter	48	8.000	50	10.6	0.363	0.164	1.0571	
15 minute winter	50	8.002	51	56.1	1.417	1.071	0.4733	
15 minute winter	51	8.003	52	57.5	1.250	0.797	0.7123	
15 minute winter	52	8.004	53	70.0	1.240	0.614	2.5874	
15 minute winter	53	8.005	54	89.8	1.555	0.815	1.8906	
15 minute winter	54	8.006	55	97.5	1.384	0.808	2.6292	
15 minute winter	55	8.007	56	157.1	2.231	0.971	0.7108	
15 minute winter	60	9.000	56	30.7	0.853	0.768	1.3138	
15 minute winter	56	8.008	57	206.6	2.934	1.202	1.0945	
15 minute winter	57	8.009	58	231.7	1.463	1.517	7.3458	
15 minute winter	58	8.010	59	254.9	1.609	0.842	4.9883	
15 minute winter	59	8.011	45	254.5	1.606	1.186	3.5750	
15 minute winter	45	7.010	46	496.2	3.132	1.342	1.8207	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	46	12	124.801	0.701	496.2	1.2386	0.0000	SURCHARGED
960 minute winter	47	945	124.633	0.633	81.3	1.1183	0.0000	SURCHARGED
600 minute winter	26	585	124.046	0.796	79.9	1.7408	0.0000	SURCHARGED
600 minute winter	27	570	124.045	0.894	78.9	1.5806	0.0000	SURCHARGED
600 minute winter	28	585	124.046	0.995	78.0	1.7590	0.0000	SURCHARGED
600 minute winter	12	585	124.045	1.093	121.0	1331.5710	0.0000	SURCHARGED
15 minute summer	13	1	123.200	0.260	22.6	0.0000	0.0000	OK
720 minute winter	47a	720	124.633	0.733	72.2	746.0513	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 winter	46	7.011	47	495.7	1.846	1.605	12.1814	
960 minute winter	47	7.012	47a	91.0	0.786	0.128	2.6526	
600 minute winter	26	2.012	27	78.9	0.871	0.148	4.6699	
600 minute winter	27	2.013	28	78.0	0.629	0.150	11.4586	
600 minute winter	28	2.014	12	77.1	0.436	0.198	20.0550	
600 minute winter	12	Hydro-Brake®	13	23.2				805.5
720 minute winter	47a	Hydro-Brake®	26	5.0				

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	0.0
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)	9.900
Ratio-R	0.400	Preferred Cover Depth (m)	1.500
CV	0.750	Include Intermediate Ground	✓
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)
61	0.116	5.00	127.139	1200	444768.510	303022.475	1.725
72	0.081	5.00	128.287	1200	444825.434	302985.788	1.725
73	0.022	5.00	127.818	1500	444825.439	303012.844	1.668
76	0.027	5.00	128.843	1200	444884.227	303033.307	1.631
78	0.054	5.00	128.511	1500	444863.690	303039.713	1.790
74	0.083	5.00	127.962	1200	444828.168	303040.018	2.389
75	0.086	5.00	127.725	1200	444813.183	303042.079	2.407
62	0.097	5.00	127.322	1500	444779.278	303050.999	2.669
63	0.022	5.00	127.210	1500	444787.030	303073.936	2.710
64	0.035	5.00	126.870	1500	444791.627	303099.555	2.570
65	0.058	5.00	126.583	1500	444770.906	303104.466	2.433
66	0.095	5.00	125.900	1500	444743.092	303115.175	1.900
67	0.215	5.00	125.550	1500	444758.031	303155.770	1.650
68			125.200	1500	444772.154	303179.379	1.450
79	0.105	5.00	127.978	1200	444905.219	303094.375	1.725
80	0.047	5.00	127.787	1200	444875.201	303096.724	2.040
88	0.123	5.00	127.168	1200	444818.922	303097.398	1.725
81	0.066	5.00	127.317	1200	444832.830	303097.561	2.208
82	0.065	5.00	125.904	1500	444833.047	303151.357	1.454
83	0.146	5.00	126.600	1200	444874.793	303151.284	2.375
84			125.600	1500	444873.877	303164.741	1.420
85			125.600	1500	444851.001	303168.407	1.500
86			125.400	1500	444833.873	303169.060	1.400
87			125.200	1500	444815.843	303170.781	1.350
69			125.200	1500	444769.580	303181.271	1.500
70			125.200	1500	444764.191	303187.829	1.550
71			124.300	1500	444765.358	303196.429	0.700

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	61	62	30.489	0.600	125.414	124.803	0.611	49.9	300	5.23	0.0
2.000	72	73	27.056	0.600	126.562	126.300	0.262	103.3	225	5.35	0.0
2.001	73	74	27.311	0.600	126.150	125.573	0.577	47.3	375	5.52	0.0
3.000	76	78	21.513	0.600	127.212	126.796	0.416	51.7	225	5.20	0.0
3.002	78	74	35.523	0.600	126.721	125.648	1.073	33.1	300	5.41	0.0
2.002	74	75	15.126	0.600	125.573	125.318	0.255	59.3	375	5.63	0.0
2.003	75	62	35.059	0.600	125.318	124.728	0.590	59.4	375	5.88	0.0
1.001	62	63	24.212	0.600	124.653	124.500	0.153	158.2	450	6.13	0.0
1.002	63	64	26.028	0.600	124.500	124.300	0.200	130.1	450	6.37	0.0
1.003	64	65	21.295	0.600	124.300	124.150	0.150	142.0	450	6.58	0.0
1.004	65	66	29.804	0.600	124.150	124.000	0.150	198.7	450	6.93	0.0
1.005	66	67	43.257	0.600	124.000	123.900	0.100	432.6	450	7.67	0.0
1.006	67	68	27.511	0.600	123.900	123.750	0.150	183.4	450	7.97	0.0
1.007	68	69	3.195	0.600	123.750	123.700	0.050	63.9	525	7.99	0.0
4.000	79	80	30.110	0.600	126.253	125.747	0.506	59.5	225	5.30	0.0
4.001	80	81	42.379	0.600	125.747	125.109	0.638	66.4	225	5.74	0.0
5.000	88	81	13.909	0.600	125.443	125.109	0.334	41.6	225	5.11	0.0
4.002	81	82	53.796	0.600	125.109	124.600	0.509	105.7	300	6.32	0.0
4.003	82	83	41.746	0.600	124.450	124.300	0.150	278.3	450	6.90	0.0
4.004	83	84	13.488	0.600	124.225	124.180	0.045	299.7	525	7.07	0.0
4.005	84	85	23.168	0.600	124.180	124.100	0.080	289.6	600	7.34	0.0
4.006	85	86	17.140	0.600	124.100	124.000	0.100	171.4	525	7.51	0.0
4.007	86	87	18.112	0.600	124.000	123.850	0.150	120.7	525	7.66	0.0
4.008	87	69	47.437	0.600	123.850	123.700	0.150	316.2	525	8.29	0.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.231	157.7	0.0	1.425	2.219	0.116	0.0	0	0.000
2.000	1.286	51.1	0.0	1.500	1.293	0.081	0.0	0	0.000
2.001	2.639	291.5	0.0	1.293	2.014	0.103	0.0	0	0.000
3.000	1.823	72.5	0.0	1.406	1.490	0.027	0.0	0	0.000
3.002	2.741	193.8	0.0	1.490	2.014	0.081	0.0	0	0.000
2.002	2.356	260.2	0.0	2.014	2.032	0.267	0.0	0	0.000
2.003	2.354	260.0	0.0	2.032	2.219	0.353	0.0	0	0.000
1.001	1.613	256.6	0.0	2.219	2.260	0.566	0.0	0	0.000
1.002	1.780	283.1	0.0	2.260	2.120	0.588	0.0	0	0.000
1.003	1.704	271.0	0.0	2.120	1.983	0.623	0.0	0	0.000
1.004	1.438	228.8	0.0	1.983	1.450	0.681	0.0	0	0.000
1.005	0.971	154.4	0.0	1.450	1.200	0.776	0.0	0	0.000
1.006	1.498	238.2	0.0	1.200	1.000	0.991	0.0	0	0.000
1.007	2.805	607.2	0.0	0.925	0.975	0.991	0.0	0	0.000
4.000	1.698	67.5	0.0	1.500	1.815	0.105	0.0	0	0.000
4.001	1.607	63.9	0.0	1.815	1.983	0.152	0.0	0	0.000
5.000	2.033	80.8	0.0	1.500	1.983	0.123	0.0	0	0.000
4.002	1.529	108.1	0.0	1.908	1.004	0.341	0.0	0	0.000
4.003	1.213	193.0	0.0	1.004	1.850	0.406	0.0	0	0.000
4.004	1.288	278.9	0.0	1.850	0.895	0.552	0.0	0	0.000
4.005	1.426	403.1	0.0	0.820	0.900	0.552	0.0	0	0.000
4.006	1.708	369.7	0.0	0.975	0.875	0.552	0.0	0	0.000
4.007	2.037	441.0	0.0	0.875	0.825	0.552	0.0	0	0.000
4.008	1.254	271.4	0.0	0.825	0.975	0.552	0.0	0	0.000

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)
1.008	69	70	8.488	0.600	123.700	123.650	0.050	169.8	525	8.37	0.0
1.009	70	71	8.679	0.600	123.650	123.600	0.050	173.6	450	8.46	0.0

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)
1.008	1.716	371.5	0.0	0.975	1.025	1.543	0.0	0	0.000
1.009	1.540	244.9	0.0	1.100	0.250	1.543	0.0	0	0.000

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	30.489	49.9	300	Circular_Default Sewer Type	127.139	125.414	1.425	127.322	124.803	2.219
2.000	27.056	103.3	225	Circular_Default Sewer Type	128.287	126.562	1.500	127.818	126.300	1.293
2.001	27.311	47.3	375	Circular_Default Sewer Type	127.818	126.150	1.293	127.962	125.573	2.014
3.000	21.513	51.7	225	Circular_Default Sewer Type	128.843	127.212	1.406	128.511	126.796	1.490
3.002	35.523	33.1	300	Circular_Default Sewer Type	128.511	126.721	1.490	127.962	125.648	2.014
2.002	15.126	59.3	375	Circular_Default Sewer Type	127.962	125.573	2.014	127.725	125.318	2.032
2.003	35.059	59.4	375	Circular_Default Sewer Type	127.725	125.318	2.032	127.322	124.728	2.219
1.001	24.212	158.2	450	Circular_Default Sewer Type	127.322	124.653	2.219	127.210	124.500	2.260
1.002	26.028	130.1	450	Circular_Default Sewer Type	127.210	124.500	2.260	126.870	124.300	2.120
1.003	21.295	142.0	450	Circular_Default Sewer Type	126.870	124.300	2.120	126.583	124.150	1.983
1.004	29.804	198.7	450	Circular_Default Sewer Type	126.583	124.150	1.983	125.900	124.000	1.450
1.005	43.257	432.6	450	Circular_Default Sewer Type	125.900	124.000	1.450	125.550	123.900	1.200
1.006	27.511	183.4	450	Circular_Default Sewer Type	125.550	123.900	1.200	125.200	123.750	1.000
1.007	3.195	63.9	525	Circular_Default Sewer Type	125.200	123.750	0.925	125.200	123.700	0.975
4.000	30.110	59.5	225	Circular_Default Sewer Type	127.978	126.253	1.500	127.787	125.747	1.815
4.001	42.379	66.4	225	Circular_Default Sewer Type	127.787	125.747	1.815	127.317	125.109	1.983
5.000	13.909	41.6	225	Circular_Default Sewer Type	127.168	125.443	1.500	127.317	125.109	1.983
4.002	53.796	105.7	300	Circular_Default Sewer Type	127.317	125.109	1.908	125.904	124.600	1.004

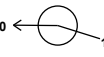
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	61	1200	Manhole	Adoptable	62	1500	Manhole	Adoptable
2.000	72	1200	Manhole	Adoptable	73	1500	Manhole	Adoptable
2.001	73	1500	Manhole	Adoptable	74	1200	Manhole	Adoptable
3.000	76	1200	Manhole	Adoptable	78	1500	Manhole	Adoptable
3.002	78	1500	Manhole	Adoptable	74	1200	Manhole	Adoptable
2.002	74	1200	Manhole	Adoptable	75	1200	Manhole	Adoptable
2.003	75	1200	Manhole	Adoptable	62	1500	Manhole	Adoptable
1.001	62	1500	Manhole	Adoptable	63	1500	Manhole	Adoptable
1.002	63	1500	Manhole	Adoptable	64	1500	Manhole	Adoptable
1.003	64	1500	Manhole	Adoptable	65	1500	Manhole	Adoptable
1.004	65	1500	Manhole	Adoptable	66	1500	Manhole	Adoptable
1.005	66	1500	Manhole	Adoptable	67	1500	Manhole	Adoptable
1.006	67	1500	Manhole	Adoptable	68	1500	Manhole	Adoptable
1.007	68	1500	Manhole	Adoptable	69	1500	Manhole	Adoptable
4.000	79	1200	Manhole	Adoptable	80	1200	Manhole	Adoptable
4.001	80	1200	Manhole	Adoptable	81	1200	Manhole	Adoptable
5.000	88	1200	Manhole	Adoptable	81	1200	Manhole	Adoptable
4.002	81	1200	Manhole	Adoptable	82	1500	Manhole	Adoptable

Pipeline Schedule

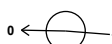
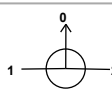
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.003	41.746	278.3	450	Circular_Default Sewer Type	125.904	124.450	1.004	126.600	124.300	1.850
4.004	13.488	299.7	525	Circular_Default Sewer Type	126.600	124.225	1.850	125.600	124.180	0.895
4.005	23.168	289.6	600	Circular_Default Sewer Type	125.600	124.180	0.820	125.600	124.100	0.900
4.006	17.140	171.4	525	Circular_Default Sewer Type	125.600	124.100	0.975	125.400	124.000	0.875
4.007	18.112	120.7	525	Circular_Default Sewer Type	125.400	124.000	0.875	125.200	123.850	0.825
4.008	47.437	316.2	525	Circular_Default Sewer Type	125.200	123.850	0.825	125.200	123.700	0.975
1.008	8.488	169.8	525	Circular_Default Sewer Type	125.200	123.700	0.975	125.200	123.650	1.025
1.009	8.679	173.6	450	Circular_Default Sewer Type	125.200	123.650	1.100	124.300	123.600	0.250

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.003	82	1500	Manhole	Adoptable	83	1200	Manhole	Adoptable
4.004	83	1200	Manhole	Adoptable	84	1500	Manhole	Adoptable
4.005	84	1500	Manhole	Adoptable	85	1500	Manhole	Adoptable
4.006	85	1500	Manhole	Adoptable	86	1500	Manhole	Adoptable
4.007	86	1500	Manhole	Adoptable	87	1500	Manhole	Adoptable
4.008	87	1500	Manhole	Adoptable	69	1500	Manhole	Adoptable
1.008	69	1500	Manhole	Adoptable	70	1500	Manhole	Adoptable
1.009	70	1500	Manhole	Adoptable	71	1500	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
61	444768.510	303022.475	127.139	1.725	1200				
						0	1.000	125.414	300
72	444825.434	302985.788	128.287	1.725	1200				
						0	2.000	126.562	225
73	444825.439	303012.844	127.818	1.668	1500				
						0	2.001	126.150	375
76	444884.227	303033.307	128.843	1.631	1200				
						0	3.000	127.212	225
78	444863.690	303039.713	128.511	1.790	1500				
						0	3.002	126.721	300
74	444828.168	303040.018	127.962	2.389	1200				
						2	2.001	125.573	375
						0	2.002	125.573	375
75	444813.183	303042.079	127.725	2.407	1200				
						1	2.002	125.318	375
						0	2.003	125.318	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
62	444779.278	303050.999	127.322	2.669	1500		1	2.003	124.728	375
						2	1.000	124.803	300	
						0	1.001	124.653	450	
63	444787.030	303073.936	127.210	2.710	1500		1	1.001	124.500	450
						0	1.002	124.500	450	
64	444791.627	303099.555	126.870	2.570	1500		1	1.002	124.300	450
						0	1.003	124.300	450	
65	444770.906	303104.466	126.583	2.433	1500		1	1.003	124.150	450
						0	1.004	124.150	450	
66	444743.092	303115.175	125.900	1.900	1500		1	1.004	124.000	450
						0	1.005	124.000	450	
67	444758.031	303155.770	125.550	1.650	1500		1	1.005	123.900	450
						0	1.006	123.900	450	
68	444772.154	303179.379	125.200	1.450	1500		1	1.006	123.750	450
						0	1.007	123.750	525	
79	444905.219	303094.375	127.978	1.725	1200					
80	444875.201	303096.724	127.787	2.040	1200		0	4.000	126.253	225
						1	4.000	125.747	225	
88	444818.922	303097.398	127.168	1.725	1200					
						0	5.000	125.443	225	
81	444832.830	303097.561	127.317	2.208	1200		1	5.000	125.109	225
						2	4.001	125.109	225	
						0	4.002	125.109	300	
82	444833.047	303151.357	125.904	1.454	1500		1	4.002	124.600	300
						0	4.003	124.450	450	
83	444874.793	303151.284	126.600	2.375	1200		1	4.003	124.300	450
						0	4.004	124.225	525	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
84	444873.877	303164.741	125.600	1.420	1500	 1	4.004	124.180	525
85	444851.001	303168.407	125.600	1.500	1500	 1	0	4.005	124.180
						1	4.005	124.100	600
						0	4.006	124.100	525
86	444833.873	303169.060	125.400	1.400	1500	 1	1	4.006	124.000
						0	4.007	124.000	525
87	444815.843	303170.781	125.200	1.350	1500	 1	1	4.007	123.850
						0	4.008	123.850	525
69	444769.580	303181.271	125.200	1.500	1500	 1	1	4.008	123.700
						2	1.007	123.700	525
						0	1.008	123.700	525
70	444764.191	303187.829	125.200	1.550	1500	 1	1	1.008	123.650
						0	1.009	123.650	450
71	444765.358	303196.429	124.300	0.700	1500	 1	1	1.009	123.600
									450

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	✓
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Node 71 Surcharged Outfall

Overrides Design Area	x	Depression Storage Area (m²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		
Applies to All storms					

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.350	540	0.350	1080	0.350	1620	0.350	2160	0.350	2700	0.350
60	0.350	600	0.350	1140	0.350	1680	0.350	2220	0.350	2760	0.350
120	0.350	660	0.350	1200	0.350	1740	0.350	2280	0.350	2820	0.350
180	0.350	720	0.350	1260	0.350	1800	0.350	2340	0.350	2880	0.350
240	0.350	780	0.350	1320	0.350	1860	0.350	2400	0.350		
300	0.350	840	0.350	1380	0.350	1920	0.350	2460	0.350		
360	0.350	900	0.350	1440	0.350	1980	0.350	2520	0.350		
420	0.350	960	0.350	1500	0.350	2040	0.350	2580	0.350		
480	0.350	1020	0.350	1560	0.350	2100	0.350	2640	0.350		

Node 70 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	123.650	Product Number	CTL-SHE-0152-1100-1000-1100
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	11.0	Min Node Diameter (mm)	1200

Node 69 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	123.700
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	230.4	0.0	1.500	758.9	0.0

Node 85 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	124.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	505.2	0.0	1.500	1281.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	61	10	125.489	0.075	21.1	0.1863	0.0000	OK
15 minute winter	72	10	126.646	0.084	14.8	0.1745	0.0000	OK
15 minute winter	73	11	126.213	0.063	18.4	0.1278	0.0000	OK
15 minute winter	76	10	127.252	0.040	4.9	0.0583	0.0000	OK
15 minute winter	78	10	126.777	0.056	14.6	0.1324	0.0000	OK
15 minute winter	74	10	125.688	0.115	47.5	0.2098	0.0000	OK
15 minute winter	75	10	125.446	0.128	62.5	0.2357	0.0000	OK
15 minute winter	62	11	124.864	0.211	100.1	0.5270	0.0000	OK
15 minute winter	63	11	124.707	0.207	104.3	0.4003	0.0000	OK
15 minute winter	64	11	124.528	0.228	110.9	0.4660	0.0000	OK
15 minute winter	65	11	124.410	0.260	120.5	0.5842	0.0000	OK
15 minute winter	66	12	124.334	0.334	134.7	0.9251	0.0000	OK
480 minute winter	67	336	124.203	0.303	20.1	1.3262	0.0000	OK
480 minute winter	68	336	124.203	0.453	19.2	0.8006	0.0000	OK
15 minute winter	79	10	126.334	0.081	19.1	0.1899	0.0000	OK
15 minute winter	80	10	125.848	0.101	27.5	0.1608	0.0000	OK
15 minute winter	88	10	125.523	0.080	22.4	0.2052	0.0000	OK
15 minute winter	81	11	125.274	0.165	61.1	0.2845	0.0000	OK
15 minute winter	82	11	124.710	0.260	71.3	0.6920	0.0000	OK
15 minute summer	83	11	124.670	0.445	98.0	1.0500	0.0000	OK
15 minute winter	84	10	124.659	0.479	140.7	0.8455	0.0000	OK
480 minute winter	85	344	124.204	0.104	11.7	55.2427	0.0000	OK
480 minute winter	86	360	124.204	0.203	15.2	0.3595	0.0000	OK
480 minute winter	87	352	124.204	0.354	16.3	0.6246	0.0000	OK
480 minute winter	69	336	124.203	0.503	39.9	161.3704	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)
15 minute winter	61	1.000	62	20.7	1.533	0.131	0.4117	
15 minute winter	72	2.000	73	14.4	1.092	0.281	0.3574	
15 minute winter	73	2.001	74	18.2	0.916	0.062	0.5559	
15 minute winter	76	3.000	78	4.8	1.026	0.066	0.1003	
15 minute winter	78	3.002	74	14.3	1.605	0.074	0.3162	
15 minute winter	74	2.002	75	47.1	1.533	0.181	0.4663	
15 minute winter	75	2.003	62	62.4	1.814	0.240	1.2122	
15 minute winter	62	1.001	63	100.5	1.392	0.392	1.7484	
15 minute winter	63	1.002	64	104.9	1.380	0.371	1.9795	
15 minute winter	64	1.003	65	110.5	1.257	0.408	1.8718	
15 minute winter	65	1.004	66	118.4	1.072	0.518	3.2846	
15 minute winter	66	1.005	67	134.4	1.142	0.870	5.0816	
480 minute winter	67	1.006	68	19.2	0.708	0.081	3.7420	
480 minute winter	68	1.007	69	33.4	1.102	0.055	0.6567	
15 minute winter	79	4.000	80	18.9	1.256	0.279	0.4529	
15 minute winter	80	4.001	81	26.8	1.119	0.420	1.0244	
15 minute winter	88	5.000	81	22.2	1.052	0.275	0.3019	
15 minute winter	81	4.002	82	60.1	1.558	0.556	2.0753	
15 minute winter	82	4.003	83	78.5	1.087	0.407	4.6550	
15 minute summer	83	4.004	84	127.3	0.959	0.456	2.6864	
15 minute winter	84	4.005	85	161.0	2.301	0.399	2.8054	
480 minute winter	85	4.006	86	10.7	0.723	0.029	0.9142	
480 minute winter	86	4.007	87	16.3	0.511	0.037	2.0890	
480 minute winter	87	4.008	69	14.2	0.088	0.052	8.7162	
480 minute winter	69	1.008	70	10.9	0.142	0.029	1.8204	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	70	336	124.203	0.553	10.9	0.9771	0.0000	SURCHARGED
15 minute summer	71	1	123.950	0.350	0.0	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)
480 minute winter	70	Hydro-Brake®	71	10.9				265.5

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	61	10	125.516	0.102	40.1	0.2521	0.0000	OK
15 minute winter	72	10	126.685	0.123	28.0	0.2544	0.0000	OK
15 minute winter	73	10	126.236	0.086	35.0	0.1754	0.0000	OK
15 minute winter	76	10	127.267	0.055	9.3	0.0810	0.0000	OK
15 minute winter	78	10	126.797	0.076	27.8	0.1800	0.0000	OK
15 minute winter	74	10	125.742	0.169	91.0	0.3092	0.0000	OK
15 minute winter	75	10	125.501	0.182	119.3	0.3368	0.0000	OK
15 minute winter	62	12	125.137	0.484	191.3	1.2074	0.0000	SURCHARGED
15 minute winter	63	12	125.045	0.545	194.8	1.0522	0.0000	SURCHARGED
15 minute winter	64	12	124.937	0.637	189.7	1.2997	0.0000	SURCHARGED
15 minute winter	65	12	124.832	0.682	200.0	1.5294	0.0000	SURCHARGED
15 minute winter	66	12	124.677	0.676	225.4	1.8718	0.0000	SURCHARGED
15 minute winter	67	11	124.411	0.511	290.7	2.2347	0.0000	SURCHARGED
360 minute winter	68	336	124.411	0.661	44.7	1.1678	0.0000	SURCHARGED
15 minute winter	79	10	126.371	0.118	36.3	0.2772	0.0000	OK
15 minute winter	80	11	125.905	0.158	52.2	0.2521	0.0000	OK
15 minute winter	88	11	125.579	0.136	42.6	0.3472	0.0000	OK
15 minute winter	81	10	125.472	0.363	113.7	0.6272	0.0000	SURCHARGED
15 minute summer	82	10	124.939	0.489	132.4	1.3014	0.0000	SURCHARGED
15 minute summer	83	10	124.847	0.622	195.2	1.4670	0.0000	SURCHARGED
15 minute winter	84	9	124.810	0.629	217.0	1.1122	0.0000	SURCHARGED
360 minute winter	85	344	124.410	0.310	36.3	182.2440	0.0000	OK
360 minute winter	86	344	124.410	0.410	15.9	0.7251	0.0000	OK
360 minute winter	87	344	124.410	0.560	22.2	0.9901	0.0000	SURCHARGED
360 minute winter	69	344	124.410	0.710	51.2	253.7693	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 winter	61	1.000	62	39.7	1.581	0.252	1.3498	
15 minute winter	72	2.000	73	27.4	1.282	0.535	0.5794	
15 minute winter	73	2.001	74	34.7	1.049	0.119	0.9206	
15 minute winter	76	3.000	78	9.1	1.234	0.126	0.1596	
15 minute winter	78	3.002	74	27.6	1.744	0.142	0.5850	
15 minute winter	74	2.002	75	89.5	1.785	0.344	0.7674	
15 minute winter	75	2.003	62	119.0	1.783	0.458	2.7435	
15 minute winter	62	1.001	63	187.2	1.536	0.730	3.8362	
15 minute winter	63	1.002	64	177.6	1.473	0.627	4.1240	
15 minute winter	64	1.003	65	184.3	1.282	0.680	3.3741	
15 minute winter	65	1.004	66	199.7	1.260	0.873	4.7222	
15 minute winter	66	1.005	67	225.1	1.421	1.458	6.8538	
15 minute winter	67	1.006	68	284.0	1.876	1.192	4.0218	
360 minute winter	68	1.007	69	45.9	1.292	0.076	0.6902	
15 minute winter	79	4.000	80	35.9	1.439	0.532	0.7516	
15 minute winter	80	4.001	81	51.2	1.357	0.802	1.4756	
15 minute winter	88	5.000	81	41.0	1.197	0.507	0.4507	
15 minute winter	81	4.002	82	115.6	1.743	1.070	3.7120	
15 minute summer	82	4.003	83	149.4	1.309	0.774	6.6144	
15 minute summer	83	4.004	84	219.5	1.333	0.787	2.9138	
15 minute winter	84	4.005	85	255.8	2.671	0.635	3.2882	
360 minute winter	85	4.006	86	15.9	0.794	0.043	2.6904	
360 minute winter	86	4.007	87	22.2	0.526	0.050	3.5963	
360 minute winter	87	4.008	69	13.1	0.102	0.048	10.2479	
360 minute winter	69	1.008	70	11.1	0.227	0.030	1.8337	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	70	344	124.410	0.760	11.1	1.3432	0.0000	SURCHARGED
15 minute summer	71	1	123.950	0.350	10.7	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)
360 minute winter	70	Hydro-Brake®	71	11.0				296.9

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	61	12	126.754	1.340	72.9	3.3189	0.0000	SURCHARGED
15 minute winter	72	12	127.163	0.601	50.9	1.2434	0.0000	SURCHARGED
15 minute winter	73	13	126.969	0.819	63.2	1.6640	0.0000	SURCHARGED
15 minute winter	76	10	127.288	0.076	17.0	0.1117	0.0000	OK
15 minute winter	78	13	127.003	0.282	50.6	0.6680	0.0000	OK
15 minute winter	74	12	126.948	1.375	151.7	2.5103	0.0000	SURCHARGED
15 minute winter	75	12	126.887	1.569	156.6	2.8957	0.0000	SURCHARGED
15 minute winter	62	12	126.654	2.001	257.7	4.9910	0.0000	SURCHARGED
15 minute winter	63	12	126.448	1.948	258.2	3.7591	0.0000	SURCHARGED
15 minute winter	64	12	126.214	1.914	273.9	3.9043	0.0000	SURCHARGED
15 minute winter	65	12	125.983	1.833	302.0	4.1141	0.0000	SURCHARGED
15 minute winter	66	12	125.627	1.627	348.3	4.5017	0.0000	FLOOD RISK
15 minute winter	67	12	124.994	1.094	459.1	4.7828	0.0000	SURCHARGED
600 minute winter	68	585	124.779	1.029	54.2	1.8187	0.0000	SURCHARGED
15 minute winter	79	12	127.840	1.587	66.0	3.7260	0.0000	FLOOD RISK
15 minute winter	80	12	127.476	1.729	78.3	2.7522	0.0000	SURCHARGED
15 minute winter	88	11	126.751	1.308	77.3	3.3444	0.0000	SURCHARGED
15 minute winter	81	11	126.429	1.320	178.4	2.2817	0.0000	SURCHARGED
15 minute winter	82	8	125.217	0.767	213.7	2.0404	0.0000	SURCHARGED
15 minute winter	83	8	125.091	0.866	300.1	2.0427	0.0000	SURCHARGED
15 minute winter	84	8	125.032	0.851	301.8	1.5046	0.0000	SURCHARGED
600 minute winter	85	585	124.779	0.679	42.6	463.8418	0.0000	SURCHARGED
600 minute winter	86	585	124.780	0.780	13.2	1.3782	0.0000	SURCHARGED
600 minute winter	87	585	124.779	0.929	13.3	1.6418	0.0000	SURCHARGED
600 minute winter	69	585	124.779	1.079	54.0	455.8790	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 winter	61	1.000	62	57.2	1.616	0.363	2.1470	
15 minute winter	72	2.000	73	49.4	1.417	0.966	1.0760	
15 minute winter	73	2.001	74	71.2	1.086	0.244	3.0123	
15 minute winter	76	3.000	78	16.8	1.454	0.231	0.4960	
15 minute winter	78	3.002	74	50.3	1.761	0.259	2.4709	
15 minute winter	74	2.002	75	132.0	1.797	0.507	1.6684	
15 minute winter	75	2.003	62	161.5	1.765	0.621	3.8669	
15 minute winter	62	1.001	63	247.0	1.559	0.963	3.8362	
15 minute winter	63	1.002	64	257.9	1.628	0.911	4.1240	
15 minute winter	64	1.003	65	275.1	1.736	1.015	3.3741	
15 minute winter	65	1.004	66	301.7	1.904	1.319	4.7222	
15 minute winter	66	1.005	67	347.3	2.192	2.249	6.8538	
15 minute winter	67	1.006	68	453.5	2.862	1.904	4.3589	
600 minute winter	68	1.007	69	54.0	1.144	0.089	0.6902	
15 minute winter	79	4.000	80	52.3	1.464	0.774	1.1975	
15 minute winter	80	4.001	81	77.0	1.937	1.206	1.6855	
15 minute winter	88	5.000	81	67.8	1.704	0.839	0.5532	
15 minute winter	81	4.002	82	177.9	2.527	1.647	3.7883	
15 minute winter	82	4.003	83	213.8	1.459	1.108	6.6144	
15 minute winter	83	4.004	84	301.8	1.645	1.082	2.9138	
15 minute winter	84	4.005	85	316.4	2.842	0.785	3.3022	
600 minute winter	85	4.006	86	-12.8	0.683	-0.035	3.7028	
600 minute winter	86	4.007	87	-13.2	0.518	-0.030	3.9128	
600 minute winter	87	4.008	69	-13.3	0.105	-0.049	10.2479	
600 minute winter	69	1.008	70	11.1	0.216	0.030	1.8337	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	70	585	124.779	1.129	11.1	1.9955	0.0000	SURCHARGED
15 minute summer	71	1	123.950	0.350	11.0	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)
600 minute winter	70	Hydro-Brake®	71	11.0				401.4

APPENDIX 3 – Drainage Layout

