

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	16.800	Minimum Backdrop Height (m)	0.200
Ratio-R	0.215	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	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)
9	0.012	4.00	68.000	1200	687668.596	727700.760	0.430
8	0.001	4.00	68.000	1200	687646.155	727700.751	0.650
7	0.005	4.00	68.000	1200	687660.004	727680.240	0.350
6			68.000	1200	687650.479	727673.410	0.460
5			68.000	1200	687646.134	727678.197	0.520
4	0.005	4.00	68.000	1200	687646.154	727686.820	0.600
3			68.000	1200	687646.155	727697.275	0.690
2	0.118	4.00	67.810	1200	687644.464	727697.274	0.660
1	0.000		67.880	1200	687644.464	727699.997	0.620
10	0.000	4.00	67.950	1200	687644.474	727682.295	0.660

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)
1.005	2	1	2.723	0.600	67.290	67.260	0.030	90.8	100	4.94	50.0
1.004	3	2	1.691	0.600	67.310	67.290	0.020	84.6	100	4.88	50.0
2.001	8	3	3.476	0.600	67.350	67.310	0.040	86.9	100	4.56	50.0
1.003	4	3	10.455	0.600	67.400	67.310	0.090	116.2	100	4.85	50.0
1.002	5	4	8.623	0.600	67.480	67.400	0.080	107.8	100	4.60	50.0
1.001	6	5	6.465	0.600	67.540	67.480	0.060	107.7	100	4.41	50.0
1.000	7	6	11.721	0.600	67.650	67.540	0.110	106.6	100	4.26	50.0
2.000	9	8	22.442	0.600	67.570	67.350	0.220	102.0	100	4.49	50.0
3.000	10	2	14.979	0.600	67.290	67.150	0.140	107.0	100	4.34	50.0

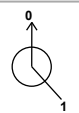
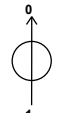
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.005	0.807	6.3	19.1	0.420	0.520	0.141	0.0	100	0.829
1.004	0.837	6.6	3.1	0.590	0.420	0.023	0.0	49	0.829
2.001	0.825	6.5	1.8	0.550	0.590	0.013	0.0	36	0.701
1.003	0.712	5.6	1.4	0.500	0.590	0.010	0.0	33	0.583
1.002	0.740	5.8	0.7	0.420	0.500	0.005	0.0	23	0.492
1.001	0.740	5.8	0.7	0.360	0.420	0.005	0.0	23	0.492
1.000	0.744	5.8	0.7	0.250	0.360	0.005	0.0	23	0.495
2.000	0.761	6.0	1.6	0.330	0.550	0.012	0.0	36	0.646
3.000	0.743	5.8	0.0	0.560	0.560	0.000	0.0	0	0.000

Pipeline Schedule

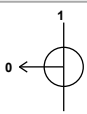
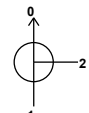
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.005	2.723	90.8	100	Circular	67.810	67.290	0.420	67.880	67.260	0.520
1.004	1.691	84.6	100	Circular	68.000	67.310	0.590	67.810	67.290	0.420
2.001	3.476	86.9	100	Circular	68.000	67.350	0.550	68.000	67.310	0.590
1.003	10.455	116.2	100	Circular	68.000	67.400	0.500	68.000	67.310	0.590
1.002	8.623	107.8	100	Circular	68.000	67.480	0.420	68.000	67.400	0.500
1.001	6.465	107.7	100	Circular	68.000	67.540	0.360	68.000	67.480	0.420
1.000	11.721	106.6	100	Circular	68.000	67.650	0.250	68.000	67.540	0.360
2.000	22.442	102.0	100	Circular	68.000	67.570	0.330	68.000	67.350	0.550
3.000	14.979	107.0	100	Circular	67.950	67.290	0.560	67.810	67.150	0.560

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.005	2	1200	Manhole	Adoptable	1	1200	Manhole	Adoptable
1.004	3	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
2.001	8	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.003	4	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.002	5	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable
1.001	6	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
1.000	7	1200	Manhole	Adoptable	6	1200	Manhole	Adoptable
2.000	9	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable
3.000	10	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
9	687668.596	727700.760	68.000	0.430	1200		0	2.000	67.570	100
8	687646.155	727700.751	68.000	0.650	1200		1	2.000	67.350	100
							0	2.001	67.350	100
7	687660.004	727680.240	68.000	0.350	1200		0	1.000	67.650	100
6	687650.479	727673.410	68.000	0.460	1200		1	1.000	67.540	100
							0	1.001	67.540	100
5	687646.134	727678.197	68.000	0.520	1200		1	1.001	67.480	100
							0	1.002	67.480	100
4	687646.154	727686.820	68.000	0.600	1200		1	1.002	67.400	100
							0	1.003	67.400	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
3	687646.155	727697.275	68.000	0.690	1200		1 2	2.001 1.003	67.310 67.310	100 100
2	687644.464	727697.274	67.810	0.660	1200		1 2 0	3.000 1.004 1.005	67.150 67.290 67.290	100 100 100
1	687644.464	727699.997	67.880	0.620	1200		1	1.005	67.260	100
10	687644.474	727682.295	67.950	0.660	1200		0	3.000	67.290	100

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	Scotland and Ireland	Drain Down Time (mins)	240
M5-60 (mm)	16.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.300	Check Discharge Rate(s)	x
Summer CV	0.750	Check Discharge Volume	x
Analysis Speed	Normal		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	20	0	0
5	20	0	0
10	20	0	0
20	20	0	0
30	20	0	0
50	20	0	0
100	20	0	0

Results for 1 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	9	10	67.606	0.036	1.7	0.0611	0.0000	OK
30 minute summer	8	20	67.550	0.200	1.6	0.2323	0.0000	SURCHARGED
15 minute summer	7	10	67.674	0.024	0.7	0.0335	0.0000	OK
15 minute summer	6	10	67.564	0.024	0.7	0.0267	0.0000	OK
15 minute summer	5	12	67.554	0.074	0.9	0.0840	0.0000	OK
15 minute summer	4	12	67.554	0.154	1.9	0.2002	0.0000	SURCHARGED
30 minute summer	3	20	67.547	0.237	3.2	0.2681	0.0000	SURCHARGED
30 minute summer	2	19	67.542	0.392	15.4	1.8465	0.0000	FLOOD RISK
15 minute summer	1	10	67.355	0.095	12.3	0.0000	0.0000	OK
30 minute summer	10	20	67.542	0.252	0.8	0.2852	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	9	2.000	8	1.7	0.554	0.280	0.1165	
30 minute summer	8	2.001	3	1.5	0.343	0.225	0.0272	
15 minute summer	7	1.000	6	0.7	0.494	0.119	0.0165	
15 minute summer	6	1.001	5	0.7	0.502	0.118	0.0241	
15 minute summer	5	1.002	4	1.1	0.248	0.195	0.0606	
15 minute summer	4	1.003	3	2.0	0.350	0.360	0.0818	
30 minute summer	3	1.004	2	3.7	0.472	0.562	0.0132	
30 minute summer	2	1.005	1	12.4	1.590	1.961	0.0211	10.0
30 minute summer	10	3.000	2	-0.8	-0.129	-0.132	0.1172	

Results for 5 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	9	12	67.704	0.134	2.6	0.2263	0.0000	FLOOD RISK
30 minute summer	8	20	67.686	0.336	2.2	0.3905	0.0000	SURCHARGED
30 minute summer	7	20	67.693	0.043	1.0	0.0610	0.0000	OK
15 minute summer	6	12	67.689	0.149	2.0	0.1683	0.0000	SURCHARGED
15 minute summer	5	12	67.691	0.211	1.8	0.2383	0.0000	SURCHARGED
15 minute summer	4	12	67.688	0.288	3.5	0.3736	0.0000	SURCHARGED
30 minute summer	3	20	67.682	0.372	5.0	0.4204	0.0000	SURCHARGED
30 minute summer	2	20	67.676	0.526	23.0	2.4770	0.0000	FLOOD RISK
15 minute summer	1	9	67.355	0.095	16.3	0.0000	0.0000	OK
30 minute summer	10	20	67.681	0.391	1.4	0.4423	0.0000	FLOOD RISK

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	9	2.000	8	2.4	0.572	0.399	0.1756	
30 minute summer	8	2.001	3	2.5	0.384	0.383	0.0272	
30 minute summer	7	1.000	6	1.0	0.527	0.165	0.0648	
15 minute summer	6	1.001	5	1.2	0.504	0.211	0.0506	
15 minute summer	5	1.002	4	2.0	0.275	0.351	0.0675	
15 minute summer	4	1.003	3	3.0	0.387	0.540	0.0818	
30 minute summer	3	1.004	2	5.6	0.713	0.849	0.0132	
30 minute summer	2	1.005	1	16.3	2.083	2.570	0.0211	15.3
30 minute summer	10	3.000	2	-1.4	-0.174	-0.234	0.1172	

Results for 10 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	9	20	67.775	0.205	2.7	0.3467	0.0000	FLOOD RISK
30 minute summer	8	20	67.755	0.405	2.5	0.4709	0.0000	FLOOD RISK
30 minute summer	7	21	67.766	0.116	1.6	0.1639	0.0000	FLOOD RISK
30 minute summer	6	21	67.762	0.222	2.1	0.2511	0.0000	FLOOD RISK
30 minute summer	5	21	67.759	0.279	2.4	0.3160	0.0000	FLOOD RISK
30 minute summer	4	20	67.756	0.356	3.4	0.4616	0.0000	FLOOD RISK
30 minute summer	3	20	67.750	0.440	5.6	0.4977	0.0000	FLOOD RISK
30 minute summer	2	19	67.748	0.598	26.8	2.8140	0.0000	FLOOD RISK
15 minute summer	1	8	67.355	0.095	17.9	0.0000	0.0000	OK
30 minute summer	10	19	67.750	0.460	1.6	0.5200	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	9	2.000	8	2.3	0.479	0.391	0.1756	
30 minute summer	8	2.001	3	2.5	0.386	0.383	0.0272	
30 minute summer	7	1.000	6	1.1	0.565	0.190	0.0917	
30 minute summer	6	1.001	5	1.8	0.494	0.306	0.0506	
30 minute summer	5	1.002	4	-2.4	-0.307	-0.413	0.0675	
30 minute summer	4	1.003	3	3.2	0.404	0.565	0.0818	
30 minute summer	3	1.004	2	6.1	0.785	0.934	0.0132	
30 minute summer	2	1.005	1	18.0	2.302	2.840	0.0211	17.9
30 minute summer	10	3.000	2	-1.6	-0.204	-0.273	0.1172	

Results for 20 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	9	20	67.848	0.278	3.5	0.4689	0.0000	FLOOD RISK
30 minute summer	8	20	67.819	0.469	2.3	0.5454	0.0000	FLOOD RISK
30 minute summer	7	21	67.830	0.180	2.4	0.2544	0.0000	FLOOD RISK
30 minute summer	6	21	67.827	0.287	2.5	0.3245	0.0000	FLOOD RISK
30 minute summer	5	21	67.825	0.345	2.8	0.3902	0.0000	FLOOD RISK
30 minute summer	4	21	67.821	0.421	4.1	0.5470	0.0000	FLOOD RISK
30 minute summer	3	20	67.813	0.503	5.8	0.5690	0.0000	FLOOD RISK
15 minute summer	2	11	67.810	0.660	34.5	3.1066	0.3532	FLOOD
15 minute summer	1	8	67.355	0.095	19.4	0.0000	0.0000	OK
15 minute summer	10	11	67.823	0.533	2.5	0.6029	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	9	2.000	8	2.1	0.502	0.353	0.1756	
30 minute summer	8	2.001	3	2.6	0.403	0.394	0.0272	
30 minute summer	7	1.000	6	1.3	0.541	0.215	0.0917	
30 minute summer	6	1.001	5	-2.0	0.462	-0.345	0.0506	
30 minute summer	5	1.002	4	-2.8	-0.352	-0.474	0.0675	
30 minute summer	4	1.003	3	3.4	0.432	0.604	0.0818	
30 minute summer	3	1.004	2	6.4	0.823	0.980	0.0132	
15 minute summer	2	1.005	1	19.4	2.478	3.057	0.0211	15.0
15 minute summer	10	3.000	2	-2.5	-0.317	-0.426	0.1172	

Results for 30 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	9	19	67.870	0.300	3.5	0.5074	0.0000	FLOOD RISK
30 minute summer	8	20	67.829	0.479	2.8	0.5570	0.0000	FLOOD RISK
30 minute summer	7	20	67.839	0.189	2.1	0.2674	0.0000	FLOOD RISK
30 minute summer	6	20	67.835	0.295	2.7	0.3334	0.0000	FLOOD RISK
30 minute summer	5	21	67.833	0.353	3.3	0.3989	0.0000	FLOOD RISK
30 minute summer	4	21	67.830	0.430	4.4	0.5586	0.0000	FLOOD RISK
30 minute summer	3	20	67.821	0.511	6.4	0.5783	0.0000	FLOOD RISK
30 minute summer	2	18	67.810	0.660	34.2	3.1066	1.3871	FLOOD
15 minute summer	1	8	67.355	0.095	19.4	0.0000	0.0000	OK
30 minute summer	10	18	67.822	0.532	2.0	0.6017	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	9	2.000	8	2.6	0.502	0.428	0.1756	
30 minute summer	8	2.001	3	2.6	0.403	0.408	0.0272	
30 minute summer	7	1.000	6	1.3	0.559	0.223	0.0917	
30 minute summer	6	1.001	5	-2.2	0.486	-0.380	0.0506	
30 minute summer	5	1.002	4	-3.3	-0.424	-0.571	0.0675	
30 minute summer	4	1.003	3	3.4	0.428	0.599	0.0818	
30 minute summer	3	1.004	2	6.4	0.820	0.976	0.0132	
30 minute summer	2	1.005	1	19.4	2.478	3.057	0.0211	21.6
30 minute summer	10	3.000	2	-2.0	-0.253	-0.340	0.1172	

Results for 50 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	9	19	67.896	0.326	4.2	0.5503	0.0000	FLOOD RISK
30 minute summer	8	20	67.841	0.491	3.2	0.5700	0.0000	FLOOD RISK
30 minute summer	7	20	67.846	0.196	2.6	0.2780	0.0000	FLOOD RISK
30 minute summer	6	20	67.844	0.304	2.4	0.3442	0.0000	FLOOD RISK
30 minute summer	5	20	67.842	0.362	2.9	0.4100	0.0000	FLOOD RISK
30 minute summer	4	20	67.840	0.440	4.9	0.5707	0.0000	FLOOD RISK
30 minute summer	3	20	67.829	0.519	6.6	0.5869	0.0000	FLOOD RISK
30 minute summer	2	17	67.810	0.660	38.2	3.1066	3.0912	FLOOD
15 minute summer	1	8	67.355	0.095	19.4	0.0000	0.0000	OK
15 minute summer	10	10	67.828	0.538	3.1	0.6090	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	9	2.000	8	3.0	0.502	0.499	0.1756	
30 minute summer	8	2.001	3	3.0	0.409	0.460	0.0272	
30 minute summer	7	1.000	6	1.4	0.571	0.236	0.0917	
30 minute summer	6	1.001	5	1.9	0.462	0.322	0.0506	
30 minute summer	5	1.002	4	-2.9	-0.377	-0.508	0.0675	
30 minute summer	4	1.003	3	3.3	0.421	0.588	0.0818	
30 minute summer	3	1.004	2	-6.6	-0.845	-1.006	0.0132	
30 minute summer	2	1.005	1	19.4	2.478	3.057	0.0211	22.9
15 minute summer	10	3.000	2	-3.1	-0.391	-0.524	0.1172	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	9	19	67.939	0.369	4.5	0.6236	0.0000	FLOOD RISK
30 minute summer	8	20	67.857	0.507	3.8	0.5889	0.0000	FLOOD RISK
30 minute summer	7	20	67.867	0.217	2.2	0.3070	0.0000	FLOOD RISK
30 minute summer	6	20	67.862	0.322	2.6	0.3644	0.0000	FLOOD RISK
30 minute summer	5	20	67.859	0.379	3.4	0.4291	0.0000	FLOOD RISK
30 minute summer	4	20	67.856	0.456	5.2	0.5917	0.0000	FLOOD RISK
30 minute summer	3	20	67.839	0.529	7.4	0.5988	0.0000	FLOOD RISK
30 minute summer	2	16	67.810	0.660	45.9	3.1066	5.9748	FLOOD
15 minute summer	1	7	67.355	0.095	19.4	0.0000	0.0000	OK
30 minute summer	10	18	67.816	0.526	2.5	0.5952	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	9	2.000	8	3.5	0.537	0.580	0.1756	
30 minute summer	8	2.001	3	3.6	0.456	0.550	0.0272	
30 minute summer	7	1.000	6	1.3	0.559	0.223	0.0917	
30 minute summer	6	1.001	5	-2.1	0.483	-0.369	0.0506	
30 minute summer	5	1.002	4	-3.4	-0.435	-0.586	0.0675	
30 minute summer	4	1.003	3	-3.4	-0.430	-0.601	0.0818	
30 minute summer	3	1.004	2	-7.4	-0.951	-1.132	0.0132	
30 minute summer	2	1.005	1	19.4	2.478	3.057	0.0211	24.6
30 minute summer	10	3.000	2	-2.5	-0.314	-0.421	0.1172	