

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	1	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	18.500	Minimum Backdrop Height (m)	0.200
Ratio-R	0.348	Preferred Cover Depth (m)	0.500
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)
RE100	0.012	5.00	71.950	100	385040.999	402434.196	1.000
101	0.006	5.00	72.430	450	385054.576	402457.719	1.752
102	0.005	5.00	72.390	450	385082.326	402441.747	2.082
103	0.005	5.00	72.200	450	385110.076	402425.776	2.212
RE104	0.007	5.00	74.470	450	385087.635	402452.158	1.000
105			72.610	450	385110.572	402447.853	1.474
106	0.013	5.00	72.270	450	385112.649	402445.120	1.470
107	0.016	5.00	71.650	450	385120.093	402445.277	1.808
OUTFALL			70.300	1200	385137.500	402444.623	1.350

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	RE100	101	27.160	0.600	70.950	70.678	0.272	100.0	100	5.59	45.1
1.001	101	102	32.018	0.600	70.678	70.358	0.320	100.0	100	6.28	42.8
1.002	102	103	32.018	0.600	70.308	69.988	0.320	100.0	150	6.81	41.2
1.003	103	107	21.923	0.600	69.988	69.842	0.146	150.0	150	7.26	40.0
2.000	RE104	105	23.338	0.600	73.470	71.136	2.334	10.0	100	5.16	46.7
2.001	105	106	3.433	0.600	71.136	70.850	0.286	12.0	100	5.18	46.6
2.002	106	107	7.446	0.600	70.800	69.869	0.931	8.0	150	5.22	46.4
1.004	107	OUTFALL	17.419	0.600	69.842	68.950	0.892	19.5	150	7.39	39.7

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.769	6.0	1.5	0.900	1.652	0.012	0.0	33	0.629
1.001	0.769	6.0	2.1	1.652	1.932	0.018	0.0	40	0.695
1.002	1.005	17.8	2.6	1.932	2.062	0.023	0.0	38	0.715
1.003	0.818	14.5	3.0	2.062	1.658	0.028	0.0	47	0.648
2.000	2.458	19.3	0.9	0.900	1.374	0.007	0.0	14	1.231
2.001	2.243	17.6	0.9	1.374	1.320	0.007	0.0	15	1.161
2.002	3.584	63.3	2.5	1.320	1.631	0.020	0.0	20	1.741
1.004	2.289	40.5	6.9	1.658	1.200	0.064	0.0	42	1.716

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	27.160	100.0	100	1 STANDARD	71.950	70.950	0.900	72.430	70.678	1.652
1.001	32.018	100.0	100	1 STANDARD	72.430	70.678	1.652	72.390	70.358	1.932
1.002	32.018	100.0	150	1 STANDARD	72.390	70.308	1.932	72.200	69.988	2.062
1.003	21.923	150.0	150	1 STANDARD	72.200	69.988	2.062	71.650	69.842	1.658
2.000	23.338	10.0	100	1 STANDARD	74.470	73.470	0.900	72.610	71.136	1.374
2.001	3.433	12.0	100	1 STANDARD	72.610	71.136	1.374	72.270	70.850	1.320
2.002	7.446	8.0	150	1 STANDARD	72.270	70.800	1.320	71.650	69.869	1.631
1.004	17.419	19.5	150	1 STANDARD	71.650	69.842	1.658	70.300	68.950	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	RE100	100	Manhole	1 STANDARD	101	450	Manhole	1 STANDARD
1.001	101	450	Manhole	1 STANDARD	102	450	Manhole	1 STANDARD
1.002	102	450	Manhole	1 STANDARD	103	450	Manhole	1 STANDARD
1.003	103	450	Manhole	1 STANDARD	107	450	Manhole	1 STANDARD
2.000	RE104	450	Manhole	1 STANDARD	105	450	Manhole	1 STANDARD
2.001	105	450	Manhole	1 STANDARD	106	450	Manhole	1 STANDARD
2.002	106	450	Manhole	1 STANDARD	107	450	Manhole	1 STANDARD
1.004	107	450	Manhole	1 STANDARD	OUTFALL	1200	Manhole	1 STANDARD

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE100	385040.999	402434.196	71.950	1.000	100				
						0	1.000	70.950	100
101	385054.576	402457.719	72.430	1.752	450		1	1.000	70.678
						0	1.001	70.678	100
102	385082.326	402441.747	72.390	2.082	450		1	1.001	70.358
						0	1.002	70.308	150
103	385110.076	402425.776	72.200	2.212	450		1	1.002	69.988
						0	1.003	69.988	150
RE104	385087.635	402452.158	74.470	1.000	450				
						0	2.000	73.470	100
105	385110.572	402447.853	72.610	1.474	450		1	2.000	71.136
						0	2.001	71.136	100
106	385112.649	402445.120	72.270	1.470	450		1	2.001	70.850
						0	2.002	70.800	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
107	385120.093	402445.277	71.650	1.808	450		1	2.002	69.869	150
							2	1.003	69.842	150
							0	1.004	69.842	150
OUTFALL	385137.500	402444.623	70.300	1.350	1200		1	1.004	68.950	150

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	18.500	Drain Down Time (mins)	240
Ratio-R	0.348	Additional Storage (m³/ha)	20.0
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 %)
1	0	0	0
30	0	0	0
100	40	0	0

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE100	10	70.983	0.033	1.5	0.0083	0.0000	OK
15 minute winter	101	11	70.719	0.041	2.2	0.0093	0.0000	OK
15 minute winter	102	11	70.347	0.039	2.7	0.0080	0.0000	OK
15 minute winter	103	12	70.037	0.049	3.2	0.0100	0.0000	OK
15 minute winter	RE104	10	73.485	0.015	0.9	0.0044	0.0000	OK
15 minute winter	105	11	71.152	0.016	0.9	0.0025	0.0000	OK
15 minute winter	106	10	70.821	0.021	2.4	0.0069	0.0000	OK
15 minute winter	107	11	69.886	0.044	7.3	0.0149	0.0000	OK
15 minute winter	OUTFALL	11	68.993	0.043	7.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE100	1.000	101	1.5	0.568	0.240	0.0716	
15 minute winter	101	1.001	102	2.1	0.694	0.343	0.0955	
15 minute winter	102	1.002	103	2.6	0.621	0.147	0.1369	
15 minute winter	103	1.003	107	3.1	0.698	0.217	0.1004	
15 minute winter	RE104	2.000	105	0.9	1.187	0.045	0.0172	
15 minute winter	105	2.001	106	0.8	1.128	0.048	0.0026	
15 minute winter	106	2.002	107	2.4	1.699	0.038	0.0106	
15 minute winter	107	1.004	OUTFALL	7.3	1.707	0.180	0.0741	3.6

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE100	10	71.005	0.055	3.6	0.0136	0.0000	OK
15 minute winter	101	11	70.750	0.072	5.3	0.0165	0.0000	OK
15 minute winter	102	11	70.371	0.062	6.5	0.0129	0.0000	OK
15 minute winter	103	11	70.069	0.081	7.9	0.0165	0.0000	OK
15 minute winter	RE104	10	73.492	0.022	2.1	0.0067	0.0000	OK
15 minute winter	105	10	71.161	0.025	2.1	0.0039	0.0000	OK
15 minute winter	106	10	70.831	0.031	6.1	0.0105	0.0000	OK
15 minute winter	107	11	69.916	0.074	18.0	0.0248	0.0000	OK
15 minute winter	OUTFALL	11	69.020	0.070	18.1	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE100	1.000	101	3.5	0.699	0.583	0.1412	
15 minute winter	101	1.001	102	5.1	0.855	0.847	0.1916	
15 minute winter	102	1.002	103	6.5	0.780	0.365	0.2658	
15 minute winter	103	1.003	107	7.7	0.872	0.532	0.2004	
15 minute winter	RE104	2.000	105	2.1	1.495	0.108	0.0325	
15 minute winter	105	2.001	106	2.1	1.437	0.117	0.0049	
15 minute winter	106	2.002	107	6.0	1.915	0.095	0.0270	
15 minute winter	107	1.004	OUTFALL	18.1	2.163	0.447	0.1456	8.9

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE100	12	71.175	0.225	6.6	0.0557	0.0000	SURCHARGED
15 minute winter	101	12	70.942	0.264	8.9	0.0601	0.0000	SURCHARGED
15 minute winter	102	11	70.388	0.080	10.0	0.0165	0.0000	OK
15 minute winter	103	11	70.100	0.112	12.5	0.0229	0.0000	OK
15 minute winter	RE104	10	73.500	0.030	3.8	0.0090	0.0000	OK
15 minute winter	105	10	71.170	0.034	3.8	0.0054	0.0000	OK
15 minute winter	106	10	70.842	0.042	10.8	0.0141	0.0000	OK
15 minute winter	107	11	69.949	0.107	31.3	0.0358	0.0000	OK
15 minute winter	OUTFALL	11	69.049	0.099	31.1	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE100	1.000	101	5.8	0.769	0.962	0.2125	
15 minute winter	101	1.001	102	7.6	0.972	1.258	0.2418	
15 minute winter	102	1.002	103	9.9	0.837	0.557	0.3789	
15 minute winter	103	1.003	107	12.3	0.981	0.851	0.3017	
15 minute winter	RE104	2.000	105	3.8	1.742	0.195	0.0506	
15 minute winter	105	2.001	106	3.7	1.676	0.212	0.0076	
15 minute winter	106	2.002	107	10.8	1.943	0.170	0.0501	
15 minute winter	107	1.004	OUTFALL	31.1	2.424	0.769	0.2235	16.2