

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.403	Preferred Cover Depth (m)	1.200
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)	Depth (m)
NODE	0.000	5.00	13.336	1200	0.486
4.01	0.010	5.00	13.547	1200	0.847
4.02	0.022	5.00	14.200	1200	1.600
4.03	0.022	5.00	14.639	1200	2.669
CS4.1	0.000		14.688	300	2.818
DMH			14.712	300	2.843

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)
1.000	NODE	4.01	4.634	0.600	12.850	12.700	0.150	30.9	150	5.04
1.001	4.01	4.02	14.894	0.600	12.700	12.600	0.100	148.9	150	5.34
1.002	4.02	4.03	11.806	0.600	12.600	12.450	0.150	78.7	150	5.52
1.003	4.03	CS4.1	3.910	0.600	11.970	11.870	0.100	39.1	150	5.56
1.004	CS4.1	DMH	1.958	0.600	11.870	11.869	0.001	1958.0	150	5.71

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)
1.000	NODE	4.01	1.818	32.1	0.0	0.336	0.697	0.000
1.001	4.01	4.02	0.821	14.5	1.4	0.697	1.450	0.010
1.002	4.02	4.03	1.134	20.0	4.3	1.450	2.039	0.032
1.003	4.03	CS4.1	1.614	28.5	7.3	2.519	2.668	0.054
1.004	CS4.1	DMH	0.219	3.9	7.3	2.668	2.693	0.054

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Node Type	Connections	Link	IL (m)	Dia (mm)
NODE	13.336	0.486	1200	Manhole				
					0	1.000	12.850	150
4.01	13.547	0.847	1200	Manhole		1	1.000	12.700
					0	1.001	12.700	150
4.02	14.200	1.600	1200	Manhole		1	1.001	12.600
					0	1.002	12.600	150
4.03	14.639	2.669	1200	Manhole		1	1.002	12.450
					0	1.003	11.970	150
CS4.1	14.688	2.818	300	Manhole		1	1.003	11.870
					0	1.004	11.870	150
DMH	14.712	2.843	300	Manhole		1	1.004	11.869
					0	1.004	11.869	150

Simulation Settings

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

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)
1	0	0	0	30	0	0	0	100	40	0	0	100
10	0	0	0									

Node DMH Offline Orifice Control

Flap Valve	x	Invert Level (m)	11.869	Discharge Coefficient	0.600
Loop to Node	CS4.1	Diameter (m)	0.100		

Node CS4.1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	11.270
Side Inf Coefficient (m/hr)	16.16000	Porosity	0.95	Time to half empty (mins)	6

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	3.0	3.0	1.600	3.0	14.2	1.601	0.0	14.2

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)	Flood (m³)	Status
15 minute summer	NODE	1	12.850	0.000	0.0	0.0000	OK
15 minute summer	4.01	11	12.730	0.030	1.3	0.0000	OK
15 minute summer	4.02	10	12.648	0.048	4.3	0.0000	OK
15 minute summer	4.03	10	12.027	0.057	7.2	0.0000	OK
15 minute summer	CS4.1	13	11.650	-0.220	7.1	0.0000	OK
15 minute summer	DMH	1	11.869	0.000	0.0	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 summer	NODE	1.000	4.01	0.0	0.000	0.000	0.0059	
15 minute summer	4.01	1.001	4.02	1.3	0.355	0.089	0.0551	
15 minute summer	4.02	1.002	4.03	4.2	0.878	0.208	0.0561	
15 minute summer	4.03	1.003	CS4.1	7.1	1.238	0.248	0.0224	
15 minute summer	CS4.1	1.004	DMH	0.0	0.000	0.000	0.0000	
15 minute summer	CS4.1	Infiltration		5.4				
15 minute summer	DMH	Orifice	CS4.1	0.0				0.0

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m³)	Status
15 minute summer	NODE	1	12.850	0.000	0.0	0.0000	OK
15 minute summer	4.01	10	12.742	0.042	2.6	0.0000	OK
15 minute summer	4.02	10	12.670	0.070	8.2	0.0000	OK
15 minute summer	4.03	10	12.056	0.086	13.8	0.0000	OK
15 minute summer	CS4.1	13	11.944	0.074	13.6	0.0000	OK
15 minute summer	DMH	13	11.944	0.075	1.7	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 summer	NODE	1.000	4.01	0.0	0.000	0.000	0.0095	
15 minute summer	4.01	1.001	4.02	2.6	0.423	0.176	0.0906	
15 minute summer	4.02	1.002	4.03	8.1	1.041	0.402	0.0917	
15 minute summer	4.03	1.003	CS4.1	13.6	1.439	0.478	0.0371	
15 minute summer	CS4.1	1.004	DMH	0.9	0.512	0.235	0.0171	
15 minute summer	CS4.1	Infiltration		10.1				
15 minute summer	DMH	Orifice	CS4.1	0.4				0.0

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)	Flood (m³)	Status
15 minute summer	NODE	1	12.850	0.000	0.0	0.0000	OK
15 minute summer	4.01	10	12.748	0.048	3.3	0.0000	OK
15 minute summer	4.02	10	12.681	0.081	10.4	0.0000	OK
15 minute summer	4.03	12	12.100	0.130	17.4	0.0000	OK
15 minute summer	CS4.1	13	12.075	0.205	17.3	0.0000	SURCHARGED
15 minute summer	DMH	13	12.076	0.207	3.7	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 summer	NODE	1.000	4.01	0.0	0.000	0.000	0.0112	
15 minute summer	4.01	1.001	4.02	3.2	0.446	0.222	0.1083	
15 minute summer	4.02	1.002	4.03	10.2	1.101	0.510	0.1098	
15 minute summer	4.03	1.003	CS4.1	17.3	1.511	0.606	0.0661	
15 minute summer	CS4.1	1.004	DMH	2.5	0.530	0.636	0.0345	
15 minute summer	CS4.1	Infiltration		12.3				
30 minute summer	DMH	Orifice	CS4.1	0.6				0.1

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)	Flood (m³)	Status
15 minute summer	NODE	1	12.850	0.000	0.0	0.0000	OK
15 minute summer	4.01	10	12.766	0.066	6.0	0.0000	OK
15 minute summer	4.02	12	12.747	0.147	19.1	0.0000	OK
15 minute summer	4.03	12	12.655	0.685	31.8	0.0000	SURCHARGED
15 minute summer	CS4.1	13	12.566	0.696	27.7	0.0000	SURCHARGED
15 minute summer	DMH	13	12.567	0.698	3.1	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 summer	NODE	1.000	4.01	0.0	0.000	0.000	0.0174	
15 minute summer	4.01	1.001	4.02	5.9	0.490	0.407	0.1796	
15 minute summer	4.02	1.002	4.03	18.6	1.223	0.929	0.2073	
15 minute summer	4.03	1.003	CS4.1	27.7	1.572	0.970	0.0688	
30 minute summer	CS4.1	1.004	DMH	2.7	0.414	0.708	0.0345	
15 minute summer	CS4.1	Infiltration		20.2				
15 minute summer	DMH	Orifice	CS4.1	0.6				0.0