

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.000
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S22	0.046	5.00	171.187	1200	401212.600	340390.407	2.793
S23		5.00	167.167	1350	401196.692	340332.869	1.417
S24	0.024	5.00	167.069	1350	401188.666	340341.291	1.435
S25	0.015	5.00	166.978	1350	401171.806	340350.346	1.558
S26	0.030	5.00	166.774	1350	401147.884	340356.598	1.580
S27	0.014	5.00	166.330	1200	401117.477	340363.328	1.609
S28	0.014	5.00	165.957	1200	401102.906	340363.009	1.965
S29	0.024	5.00	171.011	1200	401085.004	340427.331	4.231
S30	0.022	5.00	168.754	1200	401079.627	340400.724	3.331
S31	0.015	5.00	167.139	1200	401079.416	340381.403	2.683
S32	0.013	5.00	165.496	1200	401088.911	340360.004	2.224
S33	0.026	5.00	164.582	1200	401066.112	340352.212	2.506
S34	0.032	5.00	163.737	1200	401048.084	340352.190	2.558
S35	0.047	5.00	163.131	1200	401036.949	340355.979	2.536
S36			162.076	1200	401021.344	340367.106	2.443
S37	0.022	5.00	165.051	1200	401011.005	340448.690	3.316
S38	0.020	5.00	163.227	1200	401003.906	340421.619	2.891
S39	0.010	5.00	161.579	1200	400994.542	340398.265	2.501
S40	0.045	5.00	160.038	1200	400986.094	340375.625	2.873
S41		5.00	158.811	1350	400964.699	340379.648	1.426
S48			159.620	1200	400978.801	340377.226	2.520
S42			160.441	1200	400980.776	340387.526	3.441
S43			159.363	1200	400949.925	340395.334	2.563
S44			157.056	1350	400943.137	340370.397	1.425

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	S22	S25	57.175	0.600	168.394	165.420	2.974	19.2	150	5.41	50.0
2.000	S23	S24	11.634	0.600	165.750	165.634	0.116	100.3	225	5.15	50.0
2.001	S24	S25	19.137	0.600	165.634	165.420	0.214	89.4	225	5.38	50.0
1.001	S25	S26	24.726	0.600	165.420	165.194	0.226	109.4	225	5.74	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)
1.000	2.307	40.8	8.7	2.643	1.408	0.046	0.0
2.000	1.305	51.9	0.0	1.192	1.210	0.000	0.0
2.001	1.383	55.0	4.6	1.210	1.333	0.024	0.0
1.001	1.249	49.7	16.1	1.333	1.355	0.085	0.0

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)
1.002	S26	S27	31.143	0.600	165.194	164.721	0.473	65.8	225	6.06	50.0
1.003	S27	S28	14.574	0.600	164.721	163.992	0.729	20.0	225	6.15	50.0
1.004	S28	S32	14.314	0.600	163.992	163.272	0.720	19.9	225	6.23	50.0
3.000	S29	S30	27.145	0.600	166.780	165.423	1.357	20.0	225	5.15	50.0
3.001	S30	S31	19.321	0.600	165.423	164.457	0.966	20.0	225	5.26	50.0
3.002	S31	S32	23.411	0.600	164.456	163.272	1.184	19.8	225	5.40	50.0
1.005	S32	S33	24.093	0.600	163.272	162.076	1.196	20.1	225	6.37	50.0
1.006	S33	S34	18.029	0.600	162.076	161.179	0.897	20.1	225	6.47	50.0
1.007	S34	S35	11.762	0.600	161.179	160.595	0.584	20.1	225	6.53	50.0
1.008	S35	S36	19.165	0.600	160.595	159.633	0.962	19.9	225	6.64	50.0
1.009	S36	S40	36.265	0.600	159.634	157.165	2.469	14.7	225	6.82	50.0
4.000	S37	S38	27.987	0.600	161.735	160.336	1.399	20.0	225	5.16	50.0
4.001	S38	S39	25.161	0.600	160.336	159.078	1.258	20.0	225	5.30	50.0
4.002	S39	S40	24.165	0.600	159.078	157.165	1.913	12.6	225	5.41	50.0
1.010	S40	S48	7.466	0.600	157.165	157.100	0.065	114.9	225	6.92	50.0
5.000	S41	S48	14.309	0.600	157.385	157.100	0.285	50.2	225	5.13	50.0
1.011	S48	S42	10.487	0.600	157.100	157.000	0.100	104.9	225	7.06	50.0
1.012	S42	S43	31.824	0.600	157.000	156.800	0.200	159.1	225	22.13	50.0
1.013	S43	S44	25.844	0.600	156.800	155.631	1.169	22.1	225	22.22	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)
1.002	1.614	64.2	21.8	1.355	1.384	0.115	0.0
1.003	2.939	116.9	24.5	1.384	1.740	0.129	0.0
1.004	2.948	117.2	27.1	1.740	1.999	0.143	0.0
3.000	2.938	116.8	4.6	4.006	3.106	0.024	0.0
3.001	2.939	116.8	8.7	3.106	2.457	0.046	0.0
3.002	2.956	117.5	11.6	2.458	1.999	0.061	0.0
1.005	2.928	116.4	41.2	1.999	2.281	0.217	0.0
1.006	2.931	116.6	46.1	2.281	2.333	0.243	0.0
1.007	2.928	116.4	52.2	2.333	2.311	0.275	0.0
1.008	2.945	117.1	61.1	2.311	2.218	0.322	0.0
1.009	3.431	136.4	61.1	2.217	2.648	0.322	0.0
4.000	2.938	116.8	4.2	3.091	2.666	0.022	0.0
4.001	2.939	116.8	8.0	2.666	2.276	0.042	0.0
4.002	3.701	147.2	9.9	2.276	2.648	0.052	0.0
1.010	1.219	48.5	79.5	2.648	2.295	0.419	0.0
5.000	1.850	73.6	0.0	1.201	2.295	0.000	0.0
1.011	1.276	50.7	79.5	2.295	3.216	0.419	0.0
1.012	0.035	9.3	79.5	3.216	2.338	0.419	0.0
1.013	4.918	1300.3	79.5	2.338	1.200	0.419	0.0

Pipeline Schedule

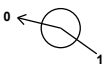
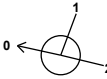
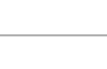
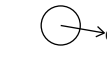
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	57.175	19.2	150	1 STANDARD	171.187	168.394	2.643	166.978	165.420	1.408
2.000	11.634	100.3	225	1 STANDARD	167.167	165.750	1.192	167.069	165.634	1.210
2.001	19.137	89.4	225	1 STANDARD	167.069	165.634	1.210	166.978	165.420	1.333
1.001	24.726	109.4	225	1 STANDARD	166.978	165.420	1.333	166.774	165.194	1.355
1.002	31.143	65.8	225	1 STANDARD	166.774	165.194	1.355	166.330	164.721	1.384
1.003	14.574	20.0	225	1 STANDARD	166.330	164.721	1.384	165.957	163.992	1.740
1.004	14.314	19.9	225	1 STANDARD	165.957	163.992	1.740	165.496	163.272	1.999
3.000	27.145	20.0	225	1 STANDARD	171.011	166.780	4.006	168.754	165.423	3.106
3.001	19.321	20.0	225	1 STANDARD	168.754	165.423	3.106	167.139	164.457	2.457
3.002	23.411	19.8	225	1 STANDARD	167.139	164.456	2.458	165.496	163.272	1.999
1.005	24.093	20.1	225	1 STANDARD	165.496	163.272	1.999	164.582	162.076	2.281
1.006	18.029	20.1	225	1 STANDARD	164.582	162.076	2.281	163.737	161.179	2.333
1.007	11.762	20.1	225	1 STANDARD	163.737	161.179	2.333	163.131	160.595	2.311
1.008	19.165	19.9	225	1 STANDARD	163.131	160.595	2.311	162.076	159.633	2.218
1.009	36.265	14.7	225	1 STANDARD	162.076	159.634	2.217	160.038	157.165	2.648
4.000	27.987	20.0	225	1 STANDARD	165.051	161.735	3.091	163.227	160.336	2.666
4.001	25.161	20.0	225	1 STANDARD	163.227	160.336	2.666	161.579	159.078	2.276
4.002	24.165	12.6	225	1 STANDARD	161.579	159.078	2.276	160.038	157.165	2.648
1.010	7.466	114.9	225	1 STANDARD	160.038	157.165	2.648	159.620	157.100	2.295
5.000	14.309	50.2	225	1 STANDARD	158.811	157.385	1.201	159.620	157.100	2.295
1.011	10.487	104.9	225	1 STANDARD	159.620	157.100	2.295	160.441	157.000	3.216
1.012	31.824	159.1	225	SWALE	160.441	157.000	3.216	159.363	156.800	2.338
1.013	25.844	22.1	225	SWALE	159.363	156.800	2.338	157.056	155.631	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S22	1200	Manhole	1 STANDARD	S25	1350	Manhole	1 STANDARD
2.000	S23	1350	Manhole	1 STANDARD	S24	1350	Manhole	1 STANDARD
2.001	S24	1350	Manhole	1 STANDARD	S25	1350	Manhole	1 STANDARD
1.001	S25	1350	Manhole	1 STANDARD	S26	1350	Manhole	1 STANDARD
1.002	S26	1350	Manhole	1 STANDARD	S27	1200	Manhole	1 STANDARD
1.003	S27	1200	Manhole	1 STANDARD	S28	1200	Manhole	1 STANDARD
1.004	S28	1200	Manhole	1 STANDARD	S32	1200	Manhole	1 STANDARD
3.000	S29	1200	Manhole	1 STANDARD	S30	1200	Manhole	1 STANDARD
3.001	S30	1200	Manhole	1 STANDARD	S31	1200	Manhole	1 STANDARD
3.002	S31	1200	Manhole	1 STANDARD	S32	1200	Manhole	1 STANDARD
1.005	S32	1200	Manhole	1 STANDARD	S33	1200	Manhole	1 STANDARD
1.006	S33	1200	Manhole	1 STANDARD	S34	1200	Manhole	1 STANDARD
1.007	S34	1200	Manhole	1 STANDARD	S35	1200	Manhole	1 STANDARD
1.008	S35	1200	Manhole	1 STANDARD	S36	1200	Manhole	1 STANDARD
1.009	S36	1200	Manhole	1 STANDARD	S40	1200	Manhole	1 STANDARD
4.000	S37	1200	Manhole	1 STANDARD	S38	1200	Manhole	1 STANDARD
4.001	S38	1200	Manhole	1 STANDARD	S39	1200	Manhole	1 STANDARD
4.002	S39	1200	Manhole	1 STANDARD	S40	1200	Manhole	1 STANDARD
1.010	S40	1200	Manhole	1 STANDARD	S48	1200	Manhole	1 STANDARD
5.000	S41	1350	Manhole	1 STANDARD	S48	1200	Manhole	1 STANDARD
1.011	S48	1200	Manhole	1 STANDARD	S42	1200	Manhole	1 STANDARD
1.012	S42	1200	Manhole	1 STANDARD	S43	1200	Manhole	1 STANDARD
1.013	S43	1200	Manhole	1 STANDARD	S44	1350	Manhole	1 STANDARD

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S22	401212.600	340390.407	171.187	2.793	1200	 0	0	1.000	168.394	150
S23	401196.692	340332.869	167.167	1.417	1350	 0	0	2.000	165.750	225
S24	401188.666	340341.291	167.069	1.435	1350	 0	1	2.000	165.634	225
S25	401171.806	340350.346	166.978	1.558	1350	 0	1	2.001	165.420	225
						 2	2	1.000	165.420	150
						 0	0	1.001	165.420	225
S26	401147.884	340356.598	166.774	1.580	1350	 0	1	1.001	165.194	225
						 0	0	1.002	165.194	225
S27	401117.477	340363.328	166.330	1.609	1200	 0	1	1.002	164.721	225
						 0	0	1.003	164.721	225
S28	401102.906	340363.009	165.957	1.965	1200	 0	1	1.003	163.992	225
						 0	0	1.004	163.992	225
S29	401085.004	340427.331	171.011	4.231	1200	 0	0	3.000	166.780	225
S30	401079.627	340400.724	168.754	3.331	1200	 0	1	3.000	165.423	225
						 0	0	3.001	165.423	225
S31	401079.416	340381.403	167.139	2.683	1200	 0	1	3.001	164.457	225
						 0	0	3.002	164.456	225
S32	401088.911	340360.004	165.496	2.224	1200	 0	1	3.002	163.272	225
						 2	2	1.004	163.272	225
						 0	0	1.005	163.272	225
S33	401066.112	340352.212	164.582	2.506	1200	 0	1	1.005	162.076	225
						 0	0	1.006	162.076	225
S34	401048.084	340352.190	163.737	2.558	1200	 0	1	1.006	161.179	225
						 0	0	1.007	161.179	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S35	401036.949	340355.979	163.131	2.536	1200		1	1.007	160.595	225
S36	401021.344	340367.106	162.076	2.443	1200		0	1.008	160.595	225
							0	1.009	159.634	225
S37	401011.005	340448.690	165.051	3.316	1200		0	4.000	161.735	225
S38	401003.906	340421.619	163.227	2.891	1200		1	4.000	160.336	225
S39	400994.542	340398.265	161.579	2.501	1200		0	4.001	160.336	225
							0	4.002	159.078	225
S40	400986.094	340375.625	160.038	2.873	1200		1	4.002	157.165	225
S41	400964.699	340379.648	158.811	1.426	1350		2	1.009	157.165	225
							0	1.010	157.165	225
S48	400978.801	340377.226	159.620	2.520	1200		0	5.000	157.385	225
S42	400980.776	340387.526	160.441	3.441	1200		1	5.000	157.100	225
							2	1.010	157.100	225
S43	400949.925	340395.334	159.363	2.563	1200		0	1.011	157.100	225
							1	1.011	157.000	225
S44	400943.137	340370.397	157.056	1.425	1350		0	1.012	157.000	225
S43	400949.925	340395.334	159.363	2.563	1200		1	1.012	156.800	225
							0	1.013	156.800	225
S44	400943.137	340370.397	157.056	1.425	1350		1	1.013	155.631	225

Simulation Settings

Rainfall Methodology FSR
FSR Region England and Wales
M5-60 (mm) 17.000
Ratio-R 0.400
Summer CV 0.750
Analysis Speed Normal

Skip Steady State x
Drain Down Time (mins) 240
Additional Storage (m³/ha) 20.0
Check Discharge Rate(s) x
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

Node S44 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	10.0	Invert Level (m)	155.250
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)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	75.4	0.0	0.501	178.6	0.0	1.001	295.8	0.0	1.501	427.1	0.0
0.101	94.9	0.0	0.601	200.9	0.0	1.101	320.9	0.0	1.601	455.1	0.0
0.201	115.0	0.0	0.701	223.8	0.0	1.201	346.6	0.0	1.701	483.6	0.0
0.301	135.6	0.0	0.801	247.2	0.0	1.301	372.9	0.0	1.801	512.6	0.0
0.401	156.8	0.0	0.901	271.2	0.0	1.401	399.7	0.0	1.806	514.1	0.0

Node S43 Link Infiltration Storage Structure

Base Inf Coefficient (m/hr)	0.07164	Porosity	1.00	Link	1.012
Side Inf Coefficient (m/hr)	0.07164	Invert Level (m)	156.800		
Safety Factor	10.0	Time to half empty (mins)			