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10 Aldersgate Street London EC1A 4HJ	ST GABRIELS 2998 PROPOSED DRAINAGE MODEL	
Date 02/09/2022 File 240124 - Revised SW Dra...	Designed by GB Checked by GB	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 385241 395742 SJ 85241 95742	
Data Type	Point
Maximum Rainfall (mm/hr)	0
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	19.737	0.180	109.6	0.000	5.00	0.0	0.600	o	100	Pipe/Conduit	
S1.001	12.908	0.142	90.9	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	10.193	0.095	107.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	8.485	0.091	93.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	8.603	0.056	153.6	0.008	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.005	16.729	0.112	149.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.006	11.883	0.080	148.5	0.024	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	12.534	0.138	90.8	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	0.00	5.45	38.947	0.000	0.0	0.0	0.0	0.73	5.8	0.0
S1.001	0.00	5.65	38.600	0.005	0.0	0.0	0.0	1.05	18.6	0.0
S1.002	0.00	5.83	38.458	0.005	0.0	0.0	0.0	0.97	17.1	0.0
S1.003	0.00	5.96	38.363	0.005	0.0	0.0	0.0	1.04	18.4	0.0
S1.004	0.00	6.10	38.242	0.013	0.0	0.0	0.0	1.05	41.8	0.0
S1.005	0.00	6.36	38.189	0.013	0.0	0.0	0.0	1.07	42.4	0.0
S1.006	0.00	6.55	38.081	0.037	0.0	0.0	0.0	1.07	42.6	0.0
S2.000	0.00	5.20	38.360	0.018	0.0	0.0	0.0	1.05	18.6	0.0

Meinhardt (UK) Ltd

10 Aldersgate Street
London
EC1A 4HJ

Date 02/09/2022
File 240124 - Revised SW Dra...

Innovyze

ST GABRIELS
2998
PROPOSED DRAINAGE MODEL

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section	Type	Auto Design
S2.001	14.794	0.102	145.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
S2.002	3.940	0.023	171.3	0.027	0.00	3.0	0.600	o	225	Pipe/Conduit		
S1.007	34.240	0.171	200.0	0.016	0.00	0.0	0.600	o	300	Pipe/Conduit		
S3.000	11.409	0.454	25.1	0.021	5.00	0.0	0.600	o	225	Pipe/Conduit		
S3.001	11.382	0.071	160.3	0.012	0.00	0.0	0.600	o	225	Pipe/Conduit		
S4.000	19.575	0.073	268.1	0.055	5.00	0.0	0.600	o	300	Pipe/Conduit		
S3.002	5.231	0.022	237.8	0.022	0.00	0.0	0.600	o	300	Pipe/Conduit		
S3.003	10.722	0.041	261.5	0.008	0.00	0.0	0.600	o	300	Pipe/Conduit		
S5.000	23.426	0.160	146.4	0.036	5.00	0.0	0.600	o	225	Pipe/Conduit		
S5.001	7.259	0.060	120.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
S5.002	14.933	0.105	142.2	0.018	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.008	5.400	0.036	150.0	0.034	0.00	0.0	0.600	o	225	Pipe/Conduit		
S6.000	17.883	0.189	94.6	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit		
S6.001	3.823	0.029	131.8	0.031	0.00	0.0	0.600	o	225	Pipe/Conduit		
S6.002	10.698	0.076	140.8	0.004	0.00	0.0	0.600	o	225	Pipe/Conduit		

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S2.001	0.00	5.43	38.187	0.018	0.0	0.0	0.0	1.08	43.1	0.0
S2.002	0.00	5.49	37.965	0.045	3.0	0.0	0.0	1.00	39.6	3.0
S1.007	0.00	7.06	37.902	0.099	3.0	0.0	0.0	1.11	78.3	3.0
S3.000	0.00	5.07	38.363	0.021	0.0	0.0	0.0	2.62	104.2	0.0
S3.001	0.00	5.26	37.998	0.034	0.0	0.0	0.0	1.03	41.0	0.0
S4.000	0.00	5.34	37.975	0.055	0.0	0.0	0.0	0.96	67.5	0.0
S3.002	0.00	5.43	37.714	0.110	0.0	0.0	0.0	1.02	71.8	0.0
S3.003	0.00	5.61	37.680	0.118	0.0	0.0	0.0	0.97	68.4	0.0
S5.000	0.00	5.36	38.480	0.036	0.0	0.0	0.0	1.08	42.9	0.0
S5.001	0.00	5.46	38.292	0.036	0.0	0.0	0.0	1.19	47.4	0.0
S5.002	0.00	5.65	37.975	0.054	0.0	0.0	0.0	1.32	93.0	0.0
S1.008	0.00	7.15	37.732	0.306	3.0	0.0	0.0	1.07	42.4	3.0
S6.000	0.00	5.29	38.710	0.000	0.0	0.0	0.0	1.03	18.3	0.0
S6.001	0.00	5.34	38.521	0.031	0.0	0.0	0.0	1.14	45.2	0.0
S6.002	0.00	5.51	38.462	0.035	0.0	0.0	0.0	1.10	43.7	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S6.003	5.356	0.044	121.7	0.005	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.004	7.850	0.044	178.4	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.005	4.614	0.010	461.4	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.006	12.733	0.081	157.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.007	4.520	0.060	75.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.008	17.341	0.119	145.7	0.030	0.00	0.0	0.600	o	225	Pipe/Conduit	
S7.000	15.810	0.735	21.5	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S6.009	2.073	0.025	82.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.010	2.517	0.013	193.6	0.009	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S6.003	0.00	5.58	38.396	0.040	0.0	0.0	0.0	1.18	47.1	0.0
S6.004	0.00	5.72	38.333	0.069	0.0	0.0	0.0	0.98	38.8	0.0
S6.005	0.00	5.84	37.765	0.083	0.0	0.0	0.0	0.60	23.9	0.0
S6.006	0.00	6.05	37.725	0.083	0.0	0.0	0.0	1.04	41.4	0.0
S6.007	0.00	6.10	37.644	0.083	0.0	0.0	0.0	1.51	60.0	0.0
S6.008	0.00	6.37	37.584	0.113	0.0	0.0	0.0	1.08	43.0	0.0
S7.000	0.00	5.12	37.944	0.006	0.0	0.0	0.0	2.18	38.5	0.0
S6.009	0.00	6.39	37.395	0.119	0.0	0.0	0.0	1.44	57.1	0.0
S6.010	0.00	6.43	37.370	0.129	0.0	0.0	0.0	0.94	37.2	0.0

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backfall (mm)
SSWMH11	39.780	0.833	Open Manhole	450	S1.000	38.947	100				
SSWMH12	39.940	1.340	Open Manhole	450	S1.001	38.600	150	S1.000	38.767	100	
SSWMH13	39.940	1.482	Open Manhole	450	S1.002	38.458	150	S1.001	38.458	150	
SSWMH14	39.940	1.577	Open Manhole	450	S1.003	38.363	150	S1.002	38.363	150	
SSWMH15	39.990	1.748	Open Manhole	600	S1.004	38.242	225	S1.003	38.272	150	
SSWMH16	40.000	1.814	Open Manhole	600	S1.005	38.189	225	S1.004	38.186	225	
SSWMH17	40.150	2.073	Open Manhole	600	S1.006	38.081	225	S1.005	38.077	225	
SSWMH20	39.600	1.240	Open Manhole	600	S2.000	38.360	150				
SSWMH21	39.600	1.413	Open Manhole	600	S2.001	38.187	225	S2.000	38.222	150	
SSWMH22	39.900	1.935	Open Manhole	600	S2.002	37.965	225	S2.001	38.085	225	
SSWMH18	39.890	1.988	Open Manhole	600	S1.007	37.902	300	S1.006	38.001	225	
								S2.002	37.942	225	
SSWMH23	40.100	1.737	Open Manhole	600	S3.000	38.363	225				
SSWMH24	39.400	1.491	Open Manhole	600	S3.001	37.998	225	S3.000	37.909	225	
STank 2	40.000	2.025	Open Manhole	150	S4.000	37.975	300				
SSWMH25	39.100	1.386	Open Manhole	600	S3.002	37.714	300	S3.001	37.927	225	
								S4.000	37.902	300	
SSWMH26	39.600	1.920	Open Manhole	600	S3.003	37.680	300	S3.002	37.692	300	
SSWMH27	39.013	0.533	Open Manhole	600	S5.000	38.480	225				
SSWMH28	39.290	0.998	Open Manhole	600	S5.001	38.292	225	S5.000	38.320	225	
STANK 3	39.500	1.525	Open Manhole	150	S5.002	37.975	300	S5.001	38.232	225	
SSWMH19	39.830	2.191	Open Manhole	1200	S1.008	37.732	225	S1.007	37.731	300	
								S3.003	37.639	300	
								S5.002	37.870	300	
SOUTFALL 2	39.910	2.214	Open Manhole	0		OUTFALL		S1.008	37.696	225	
SSWMH01	39.400	0.690	Open Manhole	450	S6.000	38.710	150				
SSWMH02	39.700	1.179	Open Manhole	600	S6.001	38.521	225	S6.000	38.521	150	
SSWMH03	39.700	1.238	Open Manhole	600	S6.002	38.462	225	S6.001	38.492	225	
SSWMH04	39.300	0.914	Open Manhole	600	S6.003	38.396	225	S6.002	38.386	225	
SSWMH05	39.200	0.867	Open Manhole	600	S6.004	38.333	225	S6.003	38.352	225	
STANK 1	39.150	1.385	Sealed Manhole	150	S6.005	37.765	225	S6.004	38.289	225	
SSWMH06	39.200	1.475	Open Manhole	600	S6.006	37.725	225	S6.005	37.755	225	
SSWMH07	39.190	1.546	Open Manhole	600	S6.007	37.644	225	S6.006	37.644	225	
SSWMH08	39.240	1.656	Open Manhole	600	S6.008	37.584	225	S6.007	37.584	225	
SSWMH10	39.230	1.286	Open Manhole	450	S7.000	37.944	150				
SSWMH09	39.100	1.891	Open Manhole	600	S6.009	37.395	225	S6.008	37.465	225	
								S7.000	37.209	150	
SEXCW01	39.020	1.650	Open Manhole	1200	S6.010	37.370	225	S6.009	37.370	225	

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
SOUTFALL 1	39.920	2.563	Open Manhole	0		SOUTFALL		S6.010	37.357	225

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SSWMH11	385291.523	395733.844	385291.523	395733.844	Required	
SSWMH12	385286.260	395714.822	385286.260	395714.822	Required	
SSWMH13	385273.845	395718.355	385273.845	395718.355	Required	
SSWMH14	385263.978	395720.911	385263.978	395720.911	Required	
SSWMH15	385257.732	395726.653	385257.732	395726.653	Required	
SSWMH16	385259.628	395735.045	385259.628	395735.045	Required	
SSWMH17	385263.971	395751.201	385263.971	395751.201	Required	
SSWMH20	385296.303	395758.678	385296.303	395758.678	Required	
SSWMH21	385284.187	395761.891	385284.187	395761.891	Required	
SSWMH22	385269.838	395765.489	385269.838	395765.489	Required	
SSWMH18	385267.087	395762.668	385267.087	395762.668	Required	
SSWMH23	385223.973	395732.752	385223.973	395732.752	Required	
SSWMH24	385226.777	395743.811	385226.777	395743.811	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
STank 2	385245.127	395745.640	385245.127	395745.640	Required	
SSWMH25	385228.004	395755.127	385228.004	395755.127	Required	
SSWMH26	385228.379	395760.344	385228.379	395760.344	Required	
SSWMH27	385210.117	395750.851	385210.117	395750.851	Required	
SSWMH28	385211.849	395774.212	385211.849	395774.212	Required	
STANK 3	385218.957	395772.741	385218.957	395772.741	Required	
SSWMH19	385233.581	395769.720	385233.581	395769.720	Required	
SOUTFALL 2	385235.220	395774.865			No Entry	
SSWMH01	385197.360	395742.516	385197.360	395742.516	Required	
SSWMH02	385179.540	395744.019	385179.540	395744.019	Required	
SSWMH03	385179.802	395747.834	385179.802	395747.834	Required	
SSWMH04	385180.551	395758.506	385180.551	395758.506	Required	
SSWMH05	385180.947	395763.848	385180.947	395763.848	Required	
STANK 1	385188.780	395763.335			No Entry	
SSWMH06	385193.390	395763.145	385193.390	395763.145	Required	

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MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SSWMH07	385194.469	395775.832	385194.469	395775.832	Required	
SSWMH08	385194.731	395780.345	385194.731	395780.345	Required	
SSWMH10	385161.684	395782.971	385161.684	395782.971	Required	
SSWMH09	385177.447	395781.753	385177.447	395781.753	Required	
SEXCWMH01	385177.560	395783.823	385177.560	395783.823	Required	
SOUTFALL 1	385177.659	395786.338			No Entry	

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.000	0.000	0.000
1.001	User	-	100	0.003	0.003	0.003
	User	-	100	0.002	0.002	0.005
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
1.004	User	-	100	0.002	0.002	0.002
	User	-	100	0.004	0.004	0.006
	User	-	100	0.003	0.003	0.008
1.005	-	-	100	0.000	0.000	0.000
1.006	User	-	100	0.006	0.006	0.006
	User	-	100	0.001	0.001	0.008
	User	-	100	0.007	0.007	0.015
	User	-	100	0.001	0.001	0.016
	User	-	100	0.008	0.008	0.024
2.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.013	0.013	0.018
2.001	-	-	100	0.000	0.000	0.000
2.002	User	-	100	0.025	0.025	0.025
	User	-	100	0.002	0.002	0.027
1.007	User	-	100	0.009	0.009	0.009
	User	-	100	0.002	0.002	0.011
	User	-	100	0.002	0.002	0.012
	User	-	100	0.004	0.004	0.016
3.000	User	-	100	0.010	0.010	0.010
	User	-	100	0.002	0.002	0.012
	User	-	100	0.009	0.009	0.021
3.001	User	-	100	0.012	0.012	0.012
4.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.007	0.007	0.015
	User	-	100	0.010	0.010	0.025
	User	-	100	0.017	0.017	0.042
	User	-	100	0.001	0.001	0.044
	User	-	100	0.002	0.002	0.045
	User	-	100	0.002	0.002	0.047
	User	-	100	0.002	0.002	0.049
	User	-	100	0.003	0.003	0.052
	User	-	100	0.003	0.003	0.055
3.002	User	-	100	0.006	0.006	0.006
	User	-	100	0.001	0.001	0.007
	User	-	100	0.001	0.001	0.008
	User	-	100	0.006	0.006	0.013
	User	-	100	0.001	0.001	0.014
	User	-	100	0.008	0.008	0.022
3.003	User	-	100	0.005	0.005	0.005
	User	-	100	0.002	0.002	0.006
	User	-	100	0.002	0.002	0.008
5.000	User	-	100	0.010	0.010	0.010
	User	-	100	0.004	0.004	0.014
	User	-	100	0.004	0.004	0.019
	User	-	100	0.004	0.004	0.023
	User	-	100	0.002	0.002	0.025

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.011	0.011	0.036
5.001	-	-	100	0.000	0.000	0.000
5.002	User	-	100	0.004	0.004	0.004
	User	-	100	0.006	0.006	0.010
	User	-	100	0.004	0.004	0.014
	User	-	100	0.004	0.004	0.018
1.008	User	-	100	0.022	0.022	0.022
	User	-	100	0.005	0.005	0.027
	User	-	100	0.002	0.002	0.029
	User	-	100	0.004	0.004	0.033
	User	-	100	0.001	0.001	0.034
6.000	-	-	100	0.000	0.000	0.000
6.001	User	-	100	0.020	0.020	0.020
	User	-	100	0.005	0.005	0.025
	User	-	100	0.005	0.005	0.029
	User	-	100	0.002	0.002	0.031
6.002	User	-	100	0.004	0.004	0.004
6.003	User	-	100	0.003	0.003	0.003
	User	-	100	0.002	0.002	0.005
6.004	User	-	100	0.006	0.006	0.006
	User	-	100	0.017	0.017	0.023
	User	-	100	0.000	0.000	0.023
	User	-	100	0.000	0.000	0.023
	User	-	100	0.003	0.003	0.026
	User	-	100	0.002	0.002	0.028
6.005	User	-	100	0.009	0.009	0.009
	User	-	100	0.005	0.005	0.014
6.006	-	-	100	0.000	0.000	0.000
6.007	-	-	100	0.000	0.000	0.000
6.008	User	-	100	0.018	0.018	0.018
	User	-	100	0.012	0.012	0.030
7.000	User	-	100	0.006	0.006	0.006
6.009	-	-	100	0.000	0.000	0.000
6.010	User	-	100	0.003	0.003	0.003
	User	-	100	0.006	0.006	0.009
				Total	Total	Total
				0.434	0.434	0.434

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.008	SOUTFALL 2	39.910	37.696	37.770	0	0

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Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S6.010	SOUTFALL 1	39.920	37.357	37.760	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha	Storage 2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	3
Number of Online Controls	2	Number of Time/Area Diagrams	2
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 385241 395742 SJ 85241 95742
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: SSWMH19, DS/PN: S1.008, Volume (m³): 6.4

Unit Reference MD-SHE-0138-9000-1043-9000
Design Head (m) 1.043
Design Flow (l/s) 9.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 138
Invert Level (m) 37.732
Minimum Outlet Pipe Diameter (mm) 225
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.043	9.0
Flush-Flo™	0.316	9.0
Kick-Flo®	0.693	7.4
Mean Flow over Head Range	-	7.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.0	1.200	9.6	3.000	14.8	7.000	22.2
0.200	8.7	1.400	10.3	3.500	16.0	7.500	23.0
0.300	9.0	1.600	11.0	4.000	17.0	8.000	23.7
0.400	8.9	1.800	11.6	4.500	18.0	8.500	24.4
0.500	8.7	2.000	12.2	5.000	18.9	9.000	25.1
0.600	8.3	2.200	12.8	5.500	19.8	9.500	25.8
0.800	7.9	2.400	13.3	6.000	20.7		
1.000	8.8	2.600	13.9	6.500	21.5		

Hydro-Brake® Optimum Manhole: SEXCWMH01, DS/PN: S6.010, Volume (m³): 1.9

Unit Reference MD-SHE-0169-1600-1730-1600
Design Head (m) 1.730
Design Flow (l/s) 16.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 169
Invert Level (m) 37.370
Minimum Outlet Pipe Diameter (mm) 225
Suggested Manhole Diameter (mm) 1500

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Hydro-Brake® Optimum Manhole: SEXCWMH01, DS/PN: S6.010, Volume (m³): 1.9

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.730	16.0
Flush-Flo™	0.501	16.0
Kick-Flo®	1.075	12.8
Mean Flow over Head Range	-	13.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.0	1.200	13.4	3.000	20.8	7.000	31.2
0.200	14.0	1.400	14.5	3.500	22.4	7.500	32.3
0.300	15.3	1.600	15.4	4.000	23.9	8.000	33.3
0.400	15.8	1.800	16.3	4.500	25.2	8.500	34.3
0.500	16.0	2.000	17.1	5.000	26.6	9.000	35.2
0.600	15.9	2.200	17.9	5.500	27.8	9.500	36.2
0.800	15.3	2.400	18.7	6.000	29.0		
1.000	13.9	2.600	19.4	6.500	30.1		

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Storage Structures for Storm

Cellular Storage Manhole: STank 2, DS/PN: S4.000

Invert Level (m) 37.975 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	190.0	0.0	0.801	0.0	0.0
0.800	190.0	0.0			

Cellular Storage Manhole: STANK 3, DS/PN: S5.002

Invert Level (m) 37.975 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	95.0	0.0	0.801	0.0	0.0
0.800	95.0	0.0			

Cellular Storage Manhole: STANK 1, DS/PN: S6.005

Invert Level (m) 37.765 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	39.5	0.0	0.801	0.0	0.0
0.800	39.5	0.0			

Time Area Diagram for Green Roof at Pipe Number S1.001 (Storm)

Area (m³) 381 Evaporation (mm/day) 3
Depression Storage (mm) 5 Decay Coefficient 0.050

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To: (ha)		From: To: (ha)		From: To: (ha)		From: To: (ha)	
0 4 0.006924		32 36 0.001398		64 68 0.000282		96 100 0.000057	
4 8 0.005668		36 40 0.001144		68 72 0.000231		100 104 0.000047	
8 12 0.004641		40 44 0.000937		72 76 0.000189		104 108 0.000038	
12 16 0.003800		44 48 0.000767		76 80 0.000155		108 112 0.000031	
16 20 0.003111		48 52 0.000628		80 84 0.000127		112 116 0.000026	
20 24 0.002547		52 56 0.000514		84 88 0.000104		116 120 0.000021	
24 28 0.002085		56 60 0.000421		88 92 0.000085			
28 32 0.001707		60 64 0.000345		92 96 0.000070			

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Time Area Diagram for Green Roof at Pipe Number S6.001 (Storm)

Area (m³) 315 Evaporation (mm/day) 3
Depression Storage (mm) 5 Decay Coefficient 0.050

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.005724	32	36	0.001156	64	68	0.000233	96	100	0.000047
4	8	0.004687	36	40	0.000946	68	72	0.000191	100	104	0.000039
8	12	0.003837	40	44	0.000775	72	76	0.000156	104	108	0.000032
12	16	0.003141	44	48	0.000634	76	80	0.000128	108	112	0.000026
16	20	0.002572	48	52	0.000519	80	84	0.000105	112	116	0.000021
20	24	0.002106	52	56	0.000425	84	88	0.000086	116	120	0.000017
24	28	0.001724	56	60	0.000348	88	92	0.000070			
28	32	0.001412	60	64	0.000285	92	96	0.000058			

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
 Number of Online Controls 2 Number of Time/Area Diagrams 2
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
 FEH Rainfall Version 2013
 Site Location GB 385241 395742 SJ 85241 95742
 Data Type Point
 Cv (Summer) 0.950
 Cv (Winter) 0.950

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100, 101
 Climate Change (%) 0, 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	SSWMH11	15 Summer	2	+0%				
S1.001	SSWMH12	120 Summer	2	+0%	101/15	Summer		
S1.002	SSWMH13	60 Winter	2	+0%	101/15	Summer		
S1.003	SSWMH14	120 Summer	2	+0%	100/15	Summer		
S1.004	SSWMH15	120 Summer	2	+0%	100/15	Summer		
S1.005	SSWMH16	120 Summer	2	+0%	30/15	Summer		
S1.006	SSWMH17	30 Summer	2	+0%	30/15	Summer		
S2.000	SSWMH20	15 Summer	2	+0%	30/15	Summer		
S2.001	SSWMH21	15 Summer	2	+0%	30/15	Summer		
S2.002	SSWMH22	30 Summer	2	+0%	30/15	Summer		
S1.007	SSWMH18	30 Summer	2	+0%	30/15	Summer		
S3.000	SSWMH23	15 Summer	2	+0%	101/60	Summer		
S3.001	SSWMH24	30 Summer	2	+0%	30/15	Summer		
S4.000	STank 2	120 Summer	2	+0%	100/30	Summer		
S3.002	SSWMH25	30 Summer	2	+0%	2/15	Summer		
S3.003	SSWMH26	30 Summer	2	+0%	2/15	Summer		

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
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PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	SSWMH11	38.947	-0.100	0.000	0.00		0.0	OK
S1.001	SSWMH12	38.635	-0.115	0.000	0.11		1.9	OK
S1.002	SSWMH13	38.495	-0.113	0.000	0.12		1.9	OK
S1.003	SSWMH14	38.399	-0.114	0.000	0.12		1.9	OK
S1.004	SSWMH15	38.285	-0.182	0.000	0.08		2.5	OK
S1.005	SSWMH16	38.227	-0.187	0.000	0.07		2.5	OK
S1.006	SSWMH17	38.179	-0.127	0.000	0.12		4.4	OK
S2.000	SSWMH20	38.406	-0.104	0.000	0.20		3.4	OK
S2.001	SSWMH21	38.232	-0.180	0.000	0.09		3.4	OK
S2.002	SSWMH22	38.179	-0.011	0.000	0.34		9.2	OK
S1.007	SSWMH18	38.173	-0.029	0.000	0.20		14.1	OK
S3.000	SSWMH23	38.393	-0.195	0.000	0.04		3.9	OK
S3.001	SSWMH24	38.145	-0.078	0.000	0.13		4.7	OK
S4.000	STank 2	38.053	-0.222	0.000	0.05	56	2.9	OK
S3.002	SSWMH25	38.139	0.125	0.000	0.07		3.3	SURCHARGED
S3.003	SSWMH26	38.142	0.162	0.000	0.07		3.8	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	SSWMH11	
S1.001	SSWMH12	
S1.002	SSWMH13	
S1.003	SSWMH14	
S1.004	SSWMH15	
S1.005	SSWMH16	
S1.006	SSWMH17	
S2.000	SSWMH20	
S2.001	SSWMH21	
S2.002	SSWMH22	
S1.007	SSWMH18	
S3.000	SSWMH23	
S3.001	SSWMH24	
S4.000	STank 2	
S3.002	SSWMH25	
S3.003	SSWMH26	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S5.000	SSWMH27	15 Summer	2	+0%	101/240 Summer			
S5.001	SSWMH28	15 Summer	2	+0%	101/30 Summer			
S5.002	STANK 3	120 Summer	2	+0%	30/30 Winter			
S1.008	SSWMH19	30 Summer	2	+0%	2/15 Summer			
S6.000	SSWMH01	15 Summer	2	+0%				
S6.001	SSWMH02	60 Summer	2	+0%				
S6.002	SSWMH03	120 Summer	2	+0%				
S6.003	SSWMH04	120 Summer	2	+0%				
S6.004	SSWMH05	15 Summer	2	+0%	101/15 Summer			
S6.005	STANK 1	30 Summer	2	+0%	100/15 Summer			
S6.006	SSWMH06	30 Summer	2	+0%	100/15 Summer			
S6.007	SSWMH07	30 Summer	2	+0%	30/15 Summer			
S6.008	SSWMH08	30 Summer	2	+0%	30/15 Summer			
S7.000	SSWMH10	15 Summer	2	+0%	100/15 Summer			
S6.009	SSWMH09	30 Summer	2	+0%	30/15 Summer			
S6.010	SEXCWMH01	30 Summer	2	+0%	30/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S5.000	SSWMH27	38.542	-0.163	0.000	0.17		6.6	OK
S5.001	SSWMH28	38.359	-0.158	0.000	0.19		6.6	OK
S5.002	STANK 3	38.077	-0.198	0.000	0.04	52	2.8	OK
S1.008	SSWMH19	38.145	0.188	0.000	0.30		9.0	SURCHARGED
S6.000	SSWMH01	38.710	-0.150	0.000	0.00		0.0	OK
S6.001	SSWMH02	38.555	-0.191	0.000	0.05		1.6	OK
S6.002	SSWMH03	38.495	-0.192	0.000	0.05		1.9	OK
S6.003	SSWMH04	38.436	-0.185	0.000	0.07		2.2	OK
S6.004	SSWMH05	38.401	-0.157	0.000	0.19		5.8	OK
S6.005	STANK 1	37.832	-0.158	0.000	0.19	23	4.7	OK
S6.006	SSWMH06	37.779	-0.171	0.000	0.13		4.7	OK
S6.007	SSWMH07	37.699	-0.170	0.000	0.14		4.7	OK
S6.008	SSWMH08	37.652	-0.157	0.000	0.20		7.6	OK
S7.000	SSWMH10	37.962	-0.132	0.000	0.03		1.2	OK
S6.009	SSWMH09	37.524	-0.096	0.000	0.27		8.2	OK
S6.010	SEXCWMH01	37.521	-0.074	0.000	0.33		9.2	OK

PN	US/MH Name	Level Exceeded
S5.000	SSWMH27	
S5.001	SSWMH28	
S5.002	STANK 3	
S1.008	SSWMH19	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
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PN	US/MH Name	Level Exceeded
S6.000	SSWMH01	
S6.001	SSWMH02	
S6.002	SSWMH03	
S6.003	SSWMH04	
S6.004	SSWMH05	
S6.005	STANK 1	
S6.006	SSWMH06	
S6.007	SSWMH07	
S6.008	SSWMH08	
S7.000	SSWMH10	
S6.009	SSWMH09	
S6.010	SEXCWMH01	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	SSWMH11	38.947	-0.100	0.000	0.00		0.0	OK
S1.001	SSWMH12	38.654	-0.096	0.000	0.28		4.7	OK
S1.002	SSWMH13	38.517	-0.091	0.000	0.31		4.8	OK
S1.003	SSWMH14	38.462	-0.051	0.000	0.30		4.9	OK
S1.004	SSWMH15	38.460	-0.007	0.000	0.20		6.6	OK
S1.005	SSWMH16	38.456	0.042	0.000	0.18		6.8	SURCHARGED
S1.006	SSWMH17	38.454	0.148	0.000	0.33		12.0	SURCHARGED
S2.000	SSWMH20	38.528	0.018	0.000	0.46		7.8	SURCHARGED
S2.001	SSWMH21	38.488	0.076	0.000	0.22		8.2	SURCHARGED
S2.002	SSWMH22	38.473	0.283	0.000	0.82		22.3	SURCHARGED
S1.007	SSWMH18	38.438	0.236	0.000	0.53		37.9	SURCHARGED
S3.000	SSWMH23	38.410	-0.178	0.000	0.10		8.8	OK
S3.001	SSWMH24	38.343	0.120	0.000	0.44		15.4	SURCHARGED
S4.000	STank 2	38.249	-0.026	0.000	0.06		3.7	OK
S3.002	SSWMH25	38.327	0.313	0.000	0.06		2.8	SURCHARGED
S3.003	SSWMH26	38.339	0.359	0.000	0.05		2.9	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	SSWMH11	
S1.001	SSWMH12	
S1.002	SSWMH13	
S1.003	SSWMH14	
S1.004	SSWMH15	
S1.005	SSWMH16	
S1.006	SSWMH17	
S2.000	SSWMH20	
S2.001	SSWMH21	
S2.002	SSWMH22	
S1.007	SSWMH18	
S3.000	SSWMH23	
S3.001	SSWMH24	
S4.000	STank 2	
S3.002	SSWMH25	
S3.003	SSWMH26	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S5.000	SSWMH27	15 Summer	30	+0%	101/240 Summer			
S5.001	SSWMH28	15 Summer	30	+0%	101/30 Summer			
S5.002	STANK 3	60 Winter	30	+0%	30/30 Winter			
S1.008	SSWMH19	30 Summer	30	+0%	2/15 Summer			
S6.000	SSWMH01	15 Summer	30	+0%				
S6.001	SSWMH02	30 Summer	30	+0%				
S6.002	SSWMH03	30 Summer	30	+0%				
S6.003	SSWMH04	60 Summer	30	+0%				
S6.004	SSWMH05	15 Summer	30	+0%	101/15 Summer			
S6.005	STANK 1	30 Summer	30	+0%	100/15 Summer			
S6.006	SSWMH06	30 Summer	30	+0%	100/15 Summer			
S6.007	SSWMH07	15 Summer	30	+0%	30/15 Summer			
S6.008	SSWMH08	15 Summer	30	+0%	30/15 Summer			
S7.000	SSWMH10	15 Summer	30	+0%	100/15 Summer			
S6.009	SSWMH09	15 Summer	30	+0%	30/15 Summer			
S6.010	SEXCW01	15 Summer	30	+0%	30/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S5.000	SSWMH27	38.577	-0.128	0.000	0.38		14.8	OK
S5.001	SSWMH28	38.396	-0.121	0.000	0.43		15.0	OK
S5.002	STANK 3	38.301	0.026	0.000	0.09		6.7	SURCHARGED
S1.008	SSWMH19	38.341	0.384	0.000	0.30		9.0	SURCHARGED
S6.000	SSWMH01	38.710	-0.150	0.000	0.00		0.0	OK
S6.001	SSWMH02	38.576	-0.170	0.000	0.13		3.9	OK
S6.002	SSWMH03	38.518	-0.169	0.000	0.13		4.7	OK
S6.003	SSWMH04	38.467	-0.154	0.000	0.21		6.2	OK
S6.004	SSWMH05	38.457	-0.101	0.000	0.59		17.5	OK
S6.005	STANK 1	37.946	-0.044	0.000	0.63	13	15.3	OK
S6.006	SSWMH06	37.944	-0.006	0.000	0.42		15.1	OK
S6.007	SSWMH07	37.944	0.075	0.000	0.41		14.3	SURCHARGED
S6.008	SSWMH08	37.952	0.143	0.000	0.41		15.9	SURCHARGED
S7.000	SSWMH10	37.971	-0.123	0.000	0.07		2.7	OK
S6.009	SSWMH09	37.937	0.317	0.000	0.53		15.8	SURCHARGED
S6.010	SEXCW01	37.933	0.338	0.000	0.57		16.0	SURCHARGED

PN	US/MH Name	Level Exceeded
S5.000	SSWMH27	
S5.001	SSWMH28	
S5.002	STANK 3	
S1.008	SSWMH19	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
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PN	US/MH Name	Level Exceeded
S6.000	SSWMH01	
S6.001	SSWMH02	
S6.002	SSWMH03	
S6.003	SSWMH04	
S6.004	SSWMH05	
S6.005	STANK 1	
S6.006	SSWMH06	
S6.007	SSWMH07	
S6.008	SSWMH08	
S7.000	SSWMH10	
S6.009	SSWMH09	
S6.010	SEXCWMH01	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
 Number of Online Controls 2 Number of Time/Area Diagrams 2
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
 FEH Rainfall Version 2013
 Site Location GB 385241 395742 SJ 85241 95742
 Data Type Point
 Cv (Summer) 0.950
 Cv (Winter) 0.950

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100, 101
 Climate Change (%) 0, 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	SSWMH11	15 Summer	100	+0%				
S1.001	SSWMH12	15 Winter	100	+0%	101/15	Summer		
S1.002	SSWMH13	30 Summer	100	+0%	101/15	Summer		
S1.003	SSWMH14	30 Summer	100	+0%	100/15	Summer		
S1.004	SSWMH15	30 Summer	100	+0%	100/15	Summer		
S1.005	SSWMH16	30 Summer	100	+0%	30/15	Summer		
S1.006	SSWMH17	30 Summer	100	+0%	30/15	Summer		
S2.000	SSWMH20	15 Summer	100	+0%	30/15	Summer		
S2.001	SSWMH21	30 Summer	100	+0%	30/15	Summer		
S2.002	SSWMH22	30 Summer	100	+0%	30/15	Summer		
S1.007	SSWMH18	60 Summer	100	+0%	30/15	Summer		
S3.000	SSWMH23	240 Winter	100	+0%	101/60	Summer		
S3.001	SSWMH24	240 Winter	100	+0%	30/15	Summer		
S4.000	STank 2	120 Winter	100	+0%	100/30	Summer		
S3.002	SSWMH25	240 Winter	100	+0%	2/15	Summer		
S3.003	SSWMH26	240 Winter	100	+0%	2/15	Summer		

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	SSWMH11	38.947	-0.100	0.000	0.00		0.0	OK
S1.001	SSWMH12	38.668	-0.082	0.000	0.34		5.9	OK
S1.002	SSWMH13	38.585	-0.023	0.000	0.44		6.8	OK
S1.003	SSWMH14	38.578	0.065	0.000	0.44		7.2	SURCHARGED
S1.004	SSWMH15	38.559	0.092	0.000	0.28		9.4	SURCHARGED
S1.005	SSWMH16	38.548	0.134	0.000	0.25		9.4	SURCHARGED
S1.006	SSWMH17	38.531	0.225	0.000	0.50		18.2	SURCHARGED
S2.000	SSWMH20	38.630	0.120	0.000	0.64		10.8	SURCHARGED
S2.001	SSWMH21	38.553	0.141	0.000	0.26		9.9	SURCHARGED
S2.002	SSWMH22	38.537	0.347	0.000	1.03		27.9	SURCHARGED
S1.007	SSWMH18	38.486	0.284	0.000	0.64		46.1	SURCHARGED
S3.000	SSWMH23	38.430	-0.158	0.000	0.03		2.2	OK
S3.001	SSWMH24	38.453	0.230	0.000	0.10		3.6	SURCHARGED
S4.000	STank 2	38.424	0.149	0.000	0.08		4.5	SURCHARGED
S3.002	SSWMH25	38.459	0.445	0.000	0.08		4.0	SURCHARGED
S3.003	SSWMH26	38.464	0.484	0.000	0.07		3.9	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	SSWMH11	
S1.001	SSWMH12	
S1.002	SSWMH13	
S1.003	SSWMH14	
S1.004	SSWMH15	
S1.005	SSWMH16	
S1.006	SSWMH17	
S2.000	SSWMH20	
S2.001	SSWMH21	
S2.002	SSWMH22	
S1.007	SSWMH18	
S3.000	SSWMH23	
S3.001	SSWMH24	
S4.000	STank 2	
S3.002	SSWMH25	
S3.003	SSWMH26	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Climate Period Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S5.000	SSWMH27	15 Summer	100 +0%	101/240 Summer			
S5.001	SSWMH28	120 Winter	100 +0%	101/30 Summer			
S5.002	STANK 3	120 Winter	100 +0%	30/30 Winter			
S1.008	SSWMH19	360 Summer	100 +0%	2/15 Summer			
S6.000	SSWMH01	15 Summer	100 +0%				
S6.001	SSWMH02	30 Summer	100 +0%				
S6.002	SSWMH03	30 Summer	100 +0%				
S6.003	SSWMH04	30 Summer	100 +0%				
S6.004	SSWMH05	15 Summer	100 +0%	101/15 Summer			
S6.005	STANK 1	60 Summer	100 +0%	100/15 Summer			
S6.006	SSWMH06	60 Summer	100 +0%	100/15 Summer			
S6.007	SSWMH07	60 Summer	100 +0%	30/15 Summer			
S6.008	SSWMH08	15 Summer	100 +0%	30/15 Summer			
S7.000	SSWMH10	15 Summer	100 +0%	100/15 Summer			
S6.009	SSWMH09	15 Summer	100 +0%	30/15 Summer			
S6.010	SEXCWMH01	15 Summer	100 +0%	30/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S5.000	SSWMH27	38.598	-0.107	0.000	0.52		20.6	OK
S5.001	SSWMH28	38.429	-0.088	0.000	0.19		6.4	OK
S5.002	STANK 3	38.428	0.153	0.000	0.04		3.3	SURCHARGED
S1.008	SSWMH19	38.463	0.506	0.000	0.30		9.0	SURCHARGED
S6.000	SSWMH01	38.710	-0.150	0.000	0.00		0.0	OK
S6.001	SSWMH02	38.587	-0.159	0.000	0.18		5.5	OK
S6.002	SSWMH03	38.533	-0.154	0.000	0.20		7.4	OK
S6.003	SSWMH04	38.494	-0.127	0.000	0.32		9.7	OK
S6.004	SSWMH05	38.488	-0.070	0.000	0.81		24.3	OK
S6.005	STANK 1	38.142	0.152	0.000	0.67	22	16.3	SURCHARGED*
S6.006	SSWMH06	38.135	0.185	0.000	0.46		16.4	SURCHARGED
S6.007	SSWMH07	38.134	0.265	0.000	0.47		16.3	SURCHARGED
S6.008	SSWMH08	38.156	0.347	0.000	0.44		16.8	SURCHARGED
S7.000	SSWMH10	38.164	0.070	0.000	0.11		3.9	SURCHARGED
S6.009	SSWMH09	38.149	0.529	0.000	0.58		17.2	SURCHARGED
S6.010	SEXCWMH01	38.146	0.551	0.000	0.57		16.0	SURCHARGED

PN	US/MH Name	Level Exceeded
S5.000	SSWMH27	
S5.001	SSWMH28	
S5.002	STANK 3	
S1.008	SSWMH19	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for Storm

PN	US/MH Name	Level Exceeded
S6.000	SSWMH01	
S6.001	SSWMH02	
S6.002	SSWMH03	
S6.003	SSWMH04	
S6.004	SSWMH05	
S6.005	STANK 1	
S6.006	SSWMH06	
S6.007	SSWMH07	
S6.008	SSWMH08	
S7.000	SSWMH10	
S6.009	SSWMH09	
S6.010	SEXCWMH01	

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101 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	SSWMH11	38.954	-0.093	0.000	0.00		0.0	OK
S1.001	SSWMH12	38.964	0.214	0.000	0.65		11.0	SURCHARGED
S1.002	SSWMH13	38.945	0.337	0.000	0.73		11.2	SURCHARGED
S1.003	SSWMH14	38.923	0.410	0.000	0.70		11.3	SURCHARGED
S1.004	SSWMH15	38.886	0.419	0.000	0.44		14.6	SURCHARGED
S1.005	SSWMH16	38.870	0.456	0.000	0.39		14.7	SURCHARGED
S1.006	SSWMH17	38.850	0.544	0.000	0.81		29.4	SURCHARGED
S2.000	SSWMH20	38.893	0.383	0.000	0.92		15.5	SURCHARGED
S2.001	SSWMH21	38.859	0.447	0.000	0.36		13.6	SURCHARGED
S2.002	SSWMH22	38.839	0.649	0.000	1.36		37.0	SURCHARGED
S1.007	SSWMH18	38.767	0.565	0.000	1.07		77.0	SURCHARGED
S3.000	SSWMH23	38.722	0.134	0.000	0.04		3.2	SURCHARGED
S3.001	SSWMH24	38.721	0.498	0.000	0.15		5.1	SURCHARGED
S4.000	STank 2	38.719	0.444	0.000	0.07		4.2	SURCHARGED
S3.002	SSWMH25	38.729	0.715	0.000	0.08		3.8	SURCHARGED
S3.003	SSWMH26	38.728	0.748	0.000	0.07		3.8	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	SSWMH11	
S1.001	SSWMH12	
S1.002	SSWMH13	
S1.003	SSWMH14	
S1.004	SSWMH15	
S1.005	SSWMH16	
S1.006	SSWMH17	
S2.000	SSWMH20	
S2.001	SSWMH21	
S2.002	SSWMH22	
S1.007	SSWMH18	
S3.000	SSWMH23	
S3.001	SSWMH24	
S4.000	STank 2	
S3.002	SSWMH25	
S3.003	SSWMH26	

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101 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S5.000	SSWMH27	240 Winter	101	+45%	101/240 Summer			
S5.001	SSWMH28	240 Winter	101	+45%	101/30 Summer			
S5.002	STANK 3	240 Winter	101	+45%	30/30 Winter			
S1.008	SSWMH19	240 Winter	101	+45%	2/15 Summer			
S6.000	SSWMH01	15 Summer	101	+45%				
S6.001	SSWMH02	30 Summer	101	+45%				
S6.002	SSWMH03	30 Summer	101	+45%				
S6.003	SSWMH04	30 Summer	101	+45%				
S6.004	SSWMH05	30 Summer	101	+45%	101/15 Summer			
S6.005	STANK 1	60 Summer	101	+45%	100/15 Summer			
S6.006	SSWMH06	60 Summer	101	+45%	100/15 Summer			
S6.007	SSWMH07	60 Summer	101	+45%	30/15 Summer			
S6.008	SSWMH08	60 Summer	101	+45%	30/15 Summer			
S7.000	SSWMH10	60 Summer	101	+45%	100/15 Summer			
S6.009	SSWMH09	60 Summer	101	+45%	30/15 Summer			
S6.010	SEXCWMH01	60 Summer	101	+45%	30/15 Summer			

PN	US/MH Name	Water			Surcharged		Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)					
S5.000	SSWMH27	38.720	0.015	0.000	0.14					5.5	FLOOD RISK
S5.001	SSWMH28	38.718	0.201	0.000	0.16					5.4	SURCHARGED
S5.002	STANK 3	38.718	0.443	0.000	0.03					2.6	SURCHARGED
S1.008	SSWMH19	38.721	0.764	0.000	0.30					9.0	SURCHARGED
S6.000	SSWMH01	38.710	-0.150	0.000	0.00					0.0	OK
S6.001	SSWMH02	38.610	-0.136	0.000	0.27					8.2	OK
S6.002	SSWMH03	38.604	-0.083	0.000	0.30					11.2	OK
S6.003	SSWMH04	38.589	-0.032	0.000	0.52					15.5	OK
S6.004	SSWMH05	38.577	0.019	0.000	1.23					36.8	SURCHARGED
S6.005	STANK 1	38.542	0.552	0.000	0.72			30	17.5	17.5	SURCHARGED*
S6.006	SSWMH06	38.541	0.591	0.000	0.48					17.0	SURCHARGED
S6.007	SSWMH07	38.549	0.680	0.000	0.49					16.7	SURCHARGED
S6.008	SSWMH08	38.550	0.741	0.000	0.45					17.2	SURCHARGED
S7.000	SSWMH10	38.544	0.450	0.000	0.10					3.5	SURCHARGED
S6.009	SSWMH09	38.539	0.919	0.000	0.55					16.6	SURCHARGED
S6.010	SEXCWMH01	38.535	0.940	0.000	0.57					16.0	SURCHARGED

PN	US/MH Name	Level Exceeded
S5.000	SSWMH27	
S5.001	SSWMH28	
S5.002	STANK 3	
S1.008	SSWMH19	

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PN	US/MH Name	Level Exceeded
S6.000	SSWMH01	
S6.001	SSWMH02	
S6.002	SSWMH03	
S6.003	SSWMH04	
S6.004	SSWMH05	
S6.005	STANK 1	
S6.006	SSWMH06	
S6.007	SSWMH07	
S6.008	SSWMH08	
S7.000	SSWMH10	
S6.009	SSWMH09	
S6.010	SEXCWMH01	