


Stuart Michael Associates		Page 1
Coombe House Coombe Square Thatcham RG19 4JF	LAND SOUTH OF ROMSEY AVENUE PORTCHESTER	
Date 09/10/2018 14:38 File SW NETWORK.MDX	Designed by JOK Checked by TSW	
Micro Drainage	Network 2016.1	

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
Site Location GB 459600 105500 SU 59600 05500	
C (1km)	-0.026
D1 (1km)	0.440
D2 (1km)	0.317
D3 (1km)	0.373
E (1km)	0.301
F (1km)	2.238
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
Add Flow / Climate Change (%)	10
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

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	40.614	0.400	101.5	0.022	4.00	0.0	0.600		o	150	Pipe/Conduit	
S2.000	9.976	0.250	39.9	0.023	4.00	0.0	0.600		o	150	Pipe/Conduit	
S1.001	50.894	0.375	135.7	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S3.000	68.668	0.300	228.9	0.076	4.00	0.0		0.060	→ *		Bio-Retention Area	
S3.001	35.673	0.200	178.4	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S4.000	58.273	0.200	291.4	0.065	4.00	0.0		0.060	→ *		Bio-Retention Area	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	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	50.00	4.68	8.250	0.022	0.0	0.0	0.3	1.00	17.6	3.3
S2.000	50.00	4.10	8.100	0.023	0.0	0.0	0.3	1.60	28.2	3.4
S1.001	50.00	5.66	7.850	0.045	0.0	0.0	0.6	0.86	15.2	6.7
S3.000	50.00	12.30	8.200	0.076	0.0	0.0	1.0	0.14	15.5	11.3
S3.001	50.00	13.09	7.900	0.076	0.0	0.0	1.0	0.75	13.2	11.3
S4.000	50.00	12.07	7.950	0.065	0.0	0.0	0.9	0.12	14.6	9.7

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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)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S4.001	3.378	0.050	67.6	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S1.002	56.731	0.350	162.1	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S5.000	46.471	0.400	116.2	0.040	4.00	0.0		0.060	→ *		Bio-Retention Area	
S5.001	3.541	0.075	47.2	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S6.000	42.919	0.400	107.3	0.040	4.00	0.0		0.060	→ *		Bio-Retention Area	
S6.001	5.654	0.075	75.4	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S1.003	39.033	0.475	82.2	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S7.000	40.097	0.350	114.6	0.064	4.00	0.0	0.600		o	300	Pipe/Conduit	
S7.001	42.607	0.300	142.0	0.033	0.00	0.0	0.600		o	300	Pipe/Conduit	
S7.002	36.660	0.250	146.6	0.035	0.00	0.0	0.600		o	300	Pipe/Conduit	
S7.003	27.668	0.250	110.7	0.016	0.00	0.0	0.600		o	300	Pipe/Conduit	
S8.000	22.687	0.250	90.7	0.025	4.00	0.0	0.600		o	225	Pipe/Conduit	
S9.000	17.756	0.250	71.0	0.023	4.00	0.0	0.600		o	225	Pipe/Conduit	
S8.001	41.268	0.400	103.2	0.032	0.00	0.0	0.600		o	225	Pipe/Conduit	
S8.002	7.193	0.500	14.4	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S7.004	39.865	0.200	199.3	0.028	0.00	0.0	0.600		o	300	Pipe/Conduit	
S7.005	18.827	0.150	125.5	0.000	0.00	0.0	0.600		o	300	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)
S4.001	50.00	12.11	7.750	0.065	0.0	0.0	0.9	1.23	21.7	9.7
S1.002	50.00	14.01	7.400	0.186	0.0	0.0	2.5	1.02	40.7	27.7
S5.000	50.00	8.11	7.600	0.040	0.0	0.0	0.5	0.19	15.3	6.0
S5.001	50.00	8.15	7.200	0.040	0.0	0.0	0.5	1.47	25.9	6.0
S6.000	50.00	7.61	7.600	0.040	0.0	0.0	0.5	0.20	16.6	6.0
S6.001	50.00	7.69	7.200	0.040	0.0	0.0	0.5	1.16	20.5	6.0
S1.003	50.00	14.46	7.050	0.266	0.0	0.0	3.6	1.44	57.4	39.6
S7.000	50.00	4.46	8.000	0.064	0.0	0.0	0.9	1.47	103.8	9.5
S7.001	50.00	4.99	7.650	0.097	0.0	0.0	1.3	1.32	93.1	14.4
S7.002	50.00	5.47	7.350	0.132	0.0	0.0	1.8	1.30	91.6	19.7
S7.003	50.00	5.77	7.100	0.148	0.0	0.0	2.0	1.49	105.6	22.0
S8.000	50.00	4.28	8.000	0.025	0.0	0.0	0.3	1.37	54.6	3.7
S9.000	50.00	4.19	8.000	0.023	0.0	0.0	0.3	1.55	61.8	3.4
S8.001	50.00	4.81	7.750	0.080	0.0	0.0	1.1	1.29	51.2	11.9
S8.002	50.00	4.84	7.350	0.080	0.0	0.0	1.1	3.47	137.9	11.9
S7.004	50.00	6.37	6.850	0.256	0.0	0.0	3.5	1.11	78.5	38.1
S7.005	50.00	6.60	6.650	0.256	0.0	0.0	3.5	1.40	99.1	38.1

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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)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S10.000	26.127	0.250	104.5	0.020	4.00	0.0		0.060	- x		Bio-Retention Area	🚫
S10.001	9.356	0.200	46.8	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	🚫
S11.000	32.810	0.300	109.4	0.035	4.00	0.0		0.060	- x		Bio-Retention Area	🚫
S11.001	4.960	0.150	33.1	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	🚫
S1.004	70.314	0.250	281.3	0.020	0.00	0.0	0.600		o	300	Pipe/Conduit	🚫
S1.005	57.930	0.500	115.9	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	🚫
S1.006	11.812	0.250	47.2	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	🚫
S1.007	5.141	0.050	102.8	0.000	0.00	0.0	0.600		o	100	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)
S10.000	50.00	6.17	7.100	0.020	0.0	0.0	0.3	0.20	22.5	3.0
S10.001	50.00	6.28	6.850	0.020	0.0	0.0	0.3	1.47	26.1	3.0
S11.000	50.00	6.79	7.100	0.035	0.0	0.0	0.5	0.20	20.5	5.2
S11.001	50.00	6.84	6.800	0.035	0.0	0.0	0.5	1.76	31.0	5.2
S1.004	50.00	15.72	6.500	0.597	0.0	0.0	8.1	0.93	65.9«	88.9
S1.005	50.00	16.38	6.250	0.597	0.0	0.0	8.1	1.46	103.2	88.9
S1.006	50.00	16.47	5.750	0.597	0.0	0.0	8.1	2.29	162.1	88.9
S1.007	50.00	16.58	6.600	0.597	0.0	0.0	8.1	0.76	6.0«	88.9

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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	0.022	0.022	0.022
2.000	-	-	100	0.023	0.023	0.023
1.001	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.076	0.076	0.076
3.001	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.065	0.065	0.065
4.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.040	0.040	0.040
5.001	-	-	100	0.000	0.000	0.000
6.000	-	-	100	0.040	0.040	0.040
6.001	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.064	0.064	0.064
7.001	-	-	100	0.033	0.033	0.033
7.002	-	-	100	0.035	0.035	0.035
7.003	-	-	100	0.016	0.016	0.016
8.000	-	-	100	0.025	0.025	0.025
9.000	-	-	100	0.023	0.023	0.023
8.001	-	-	100	0.032	0.032	0.032
8.002	-	-	100	0.000	0.000	0.000
7.004	-	-	100	0.028	0.028	0.028
7.005	-	-	100	0.000	0.000	0.000
10.000	-	-	100	0.020	0.020	0.020
10.001	-	-	100	0.000	0.000	0.000
11.000	-	-	100	0.035	0.035	0.035
11.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.020	0.020	0.020
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.597	0.597	0.597

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)
S1.007	S	6.750	6.550	7.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	10.000
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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 7 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Return Period (years) 100

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Synthetic Rainfall Details

Site Location	GB 459600 105500 SU 59600 05500	F (1km)	2.238
C (1km)	-0.026	Summer Storms	Yes
D1 (1km)	0.440	Winter Storms	Yes
D2 (1km)	0.317	Cv (Summer)	0.750
D3 (1km)	0.373	Cv (Winter)	0.840
E (1km)	0.301	Storm Duration (mins)	30

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Storage Structures for Storm

Bio-Retention Area Pipe: S3.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 8.200 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 154.0 Diameter (m) 0.150
 Base Perimeter (m) 127.000 Number of Pipes 1
 Top Area (m²) 172.0 Manning's N 0.015
 Depth above Invert Level (m) 0.015

Filtration Layers

Filter Side Infiltration (m/hr) 0.00000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
------	------------	----------	-------------	---------------

Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Bio-Retention Area Pipe: S4.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 7.950 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 146.0 Diameter (m) 0.150
 Base Perimeter (m) 132.000 Number of Pipes 1
 Top Area (m²) 170.0 Manning's N 0.015
 Depth above Invert Level (m) 0.050

Filtration Layers

Filter Side Infiltration (m/hr) 0.00000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
------	------------	----------	-------------	---------------

Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Bio-Retention Area Pipe: S5.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 7.600 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 75.0 Depth above Invert Level (m) 0.050 Manning's N 0.015
 Base Perimeter (m) 80.000 Diameter (m) 0.150
 Top Area (m²) 90.0 Number of Pipes 1

Filtration Layers

Filter Side Infiltration (m/hr) 0.00000

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Bio-Retention Area Pipe: S5.000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Bio-Retention Area Pipe: S6.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 7.600 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 70.0 Depth above Invert Level (m) 0.050 Manning's N 0.015
 Base Perimeter (m) 70.000 Diameter (m) 0.180
 Top Area (m²) 90.0 Number of Pipes 1

Filtration Layers

Filter Side Infiltration (m/hr) 0.00000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Bio-Retention Area Pipe: S10.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 7.100 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 60.0 Depth above Invert Level (m) 0.050 Manning's N 0.015
 Base Perimeter (m) 53.000 Diameter (m) 0.150
 Top Area (m²) 75.0 Number of Pipes 1

Filtration Layers

Filter Side Infiltration (m/hr) 0.00000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Bio-Retention Area Pipe: S11.000

Manning's N 0.060 Infiltration Coefficient Base (m/hr) 0.00000
 Invert Level (m) 7.100 Infiltration Coefficient Side (m/hr) 0.00000
 Porosity 1.00 Safety Factor 2.0

Under Drain Details

Base Area (m²) 70.0 Base Perimeter (m) 68.000 Top Area (m²) 90.0

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Bio-Retention Area Pipe: S11.000

Depth above Invert Level (m) 0.050 Number of Pipes 1
 Diameter (m) 0.150 Manning's N 0.015

Filtration Layers
 Filter Side Infiltration (m/hr) 0.00000

Name	Depth (mm)	Porosity	Rate (m/hr)	Safety Factor
Void	300	1.00	10.00000	2.0
Mulch	100	0.30	1.00000	2.0
Filtration	700	0.10	0.03600	2.0
Transition	100	0.10	0.18000	2.0
Storage	600	0.30	1.00000	2.0

Infiltration Basin Manhole: S19, DS/PN: S1.007

Invert Level (m) 5.500 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.02530 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.02530

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	426.1	1.000	673.8

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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 10.000
 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 7 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.373
 Site Location GB 459600 105500 SU 59600 05500 E (1km) 0.301
 C (1km) -0.026 F (1km) 2.238
 D1 (1km) 0.440 Cv (Summer) 0.750
 D2 (1km) 0.317 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,
 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
 Return Period(s) (years) 100
 Climate Change (%) 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1 15	Winter	100	+40%	100/15	Summer			8.695	0.295
S2.000	S2 15	Winter	100	+40%	100/15	Summer			8.583	0.333
S1.001	S3 15	Winter	100	+40%	100/15	Summer			8.543	0.543
S3.000	S0 15	Winter	100	+40%					8.367	-1.633
S3.001	S0 15	Winter	100	+40%	100/15	Summer			8.154	0.104
S4.000	S0 15	Winter	100	+40%					8.177	-1.623
S4.001	S0 15	Winter	100	+40%	100/15	Summer			7.985	0.085
S1.002	S4 15	Winter	100	+40%	100/15	Summer			7.940	0.315
S5.000	S0 15	Winter	100	+40%					7.687	-1.713
S5.001	S0 30	Winter	100	+40%	100/15	Summer			7.576	0.226
S6.000	S0 15	Winter	100	+40%					7.720	-1.680
S6.001	S0 30	Winter	100	+40%	100/15	Summer			7.581	0.231
S1.003	S5 30	Winter	100	+40%	100/15	Summer			7.573	0.298
S7.000	S6 15	Winter	100	+40%					8.294	-0.006
S7.001	S7 15	Winter	100	+40%	100/15	Summer			8.257	0.307
S7.002	S8 15	Winter	100	+40%	100/15	Summer			8.190	0.540
S7.003	S9 15	Winter	100	+40%	100/15	Summer			8.078	0.678
S8.000	S10 15	Winter	100	+40%	100/15	Winter			8.241	0.016
S9.000	S11 15	Winter	100	+40%	100/15	Winter			8.237	0.012
S8.001	S12 15	Winter	100	+40%	100/15	Summer			8.218	0.243
S8.002	S13 15	Winter	100	+40%	100/15	Summer			8.027	0.452
S7.004	S14 15	Winter	100	+40%	100/15	Summer			7.969	0.819
S7.005	S15 15	Winter	100	+40%	100/15	Summer			7.531	0.581
S10.000	S0 30	Winter	100	+40%					7.291	-1.609
S10.001	S0 30	Winter	100	+40%	100/15	Summer			7.291	0.291
S11.000	S0 30	Winter	100	+40%					7.281	-1.619
S11.001	S0 30	Winter	100	+40%	100/15	Summer			7.281	0.331
S1.004	S16 15	Winter	100	+40%	100/15	Summer			7.318	0.518
S1.005	S17 15	Winter	100	+40%	100/15	Summer			6.615	0.065

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

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
S1.000	S1	0.000	0.73	12.5		SURCHARGED	
S2.000	S2	0.000	0.52	13.0		SURCHARGED	
S1.001	S3	0.000	1.41	21.0		SURCHARGED	
S3.000	S0	0.000	0.07	36.1		OK	
S3.001	S0	0.000	1.18	15.1		SURCHARGED	
S4.000	S0	0.000	0.06	35.3		OK	
S4.001	S0	0.000	1.34	18.8		SURCHARGED	
S1.002	S4	0.000	1.04	41.0		SURCHARGED	
S5.000	S0	0.000	0.05	22.0		OK	
S5.001	S0	0.000	0.98	16.9		SURCHARGED	
S6.000	S0	0.000	0.04	22.0		OK	
S6.001	S0	0.000	0.70	11.9		SURCHARGED	
S1.003	S5	0.000	0.95	51.7		SURCHARGED	
S7.000	S6	0.000	0.47	45.1		OK	
S7.001	S7	0.000	0.64	56.0		SURCHARGED	
S7.002	S8	0.000	0.73	61.5		SURCHARGED	
S7.003	S9	0.000	0.66	62.6		SURCHARGED	
S8.000	S10	0.000	0.35	17.6		SURCHARGED	
S9.000	S11	0.000	0.29	16.0		SURCHARGED	
S8.001	S12	0.000	0.96	46.9		SURCHARGED	
S8.002	S13	0.000	0.38	38.1		SURCHARGED	
S7.004	S14	0.000	1.47	107.5		SURCHARGED	
S7.005	S15	0.000	1.26	107.5		SURCHARGED	
S10.000	S0	0.000	0.01	7.8		OK	
S10.001	S0	0.000	0.59	13.6		SURCHARGED	
S11.000	S0	0.000	0.02	13.2		OK	
S11.001	S0	0.000	0.80	19.4		SURCHARGED	
S1.004	S16	0.000	1.73	109.0		SURCHARGED	
S1.005	S17	0.000	1.08	105.4		SURCHARGED	

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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 Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.006	S18	960 Winter	100	+40%	100/60 Summer				6.490	0.440
S1.007	S19	960 Winter	100	+40%					6.487	-0.213

Flooded				Pipe		
PN	US/MH Name	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Level Exceeded
S1.006	S18	0.000	0.23		29.2	SURCHARGED
S1.007	S19	0.000	0.00		0.0	OK