Existing Network Details for Storm

* - Indicates pipe has been modified outside of System 1

	PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	Section Type
*	1.000	6.400	0.115	55.7	0.030	5.00	0.600	o	225	Pipe/Conduit
*	2.000	6.305	0.230	27.4	0.060	5.00	0.600	o	225	Pipe/Conduit
*	1.001	10.290	0.055	187.1	0.040	0.00	0.600	o	300	Pipe/Conduit
*	1.002	46.543	0.120	387.9	0.060	0.00	0.600	o	300	Pipe/Conduit
*	1.003	12.074	0.100	120.7	0.060	0.00	0.600	o	300	Pipe/Conduit
*	1.004	8.292	0.050	165.8	0.010	0.00	0.600	o	300	Pipe/Conduit
*	1.005	6.690	0.050	133.8	0.000	0.00	0.600	o	150	Pipe/Conduit
*	1.006	3.441	0.730	4.7	0.000	0.00	0.600	o	150	Pipe/Conduit

	PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
*	1.000	S0	22.250	21.510	0.515	22.100	21.395	0.480		1200
*	2.000	S4	22.200	21.000	0.975	22.100	20.770	1.105		1200
*	1.001	S1	22.100	20.695	1.105	22.260	20.640	1.320		1200
*	1.002	S2	22.260	20.640	1.320	22.960	20.520	2.140		1200
*	1.003	S3	22.960	20.520	2.140	23.000	20.420	2.280		1200
*	1.004	S5	23.000	20.420	2.280	22.850	20.370	2.180		1200
*	1.005	TANK	22.850	20.370	2.330	22.730	20.320	2.260		1200
*	1.006	S6	22.730	20.320	2.260	22.760	19.590	3.020	Hydro-Brake®	1200

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)
1.006	C1	22.760	19.590	19.590	1200	0

©1982-2017 XP Solutions

Online Controls for Storm

Hydro-Brake® Optimum Manhole: S6, DS/PN: 1.006, Volume (m³): 2.8

Unit Reference	MD-SHE-0098-5000-1500-5000
Design Head (m)	1.500
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	98
Invert Level (m)	20.320
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	5.0
Flush-Flo™	0.431	4.9
Kick-Flo®	0.878	3.9
Mean Flow over Head Range	-	4.3

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	3.2	1.200	4.5	3.000	6.9	7.000	10.3
0.200	4.4	1.400	4.8	3.500	7.4	7.500	10.7
0.300	4.8	1.600	5.1	4.000	7.9	8.000	11.0
0.400	4.9	1.800	5.4	4.500	8.4	8.500	11.3
0.500	4.9	2.000	5.7	5.000	8.8	9.000	11.6
0.600	4.8	2.200	6.0	5.500	9.2	9.500	11.9
0.800	4.3	2.400	6.2	6.000	9.6		
1.000	4.1	2.600	6.5	6.500	10.0		

©1982-2017 XP Solutions

Storage Structures for Storm

Filter Drain Manhole: S4, DS/PN: 2.000

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.100
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	38.9
Invert Level (m)	21.600	Cap Volume Depth (m)	0.000
Trench Width (m)	0.8	Cap Infiltration Depth (m)	0.000
Trench Length (m)	47.5		

Tank or Pond Manhole: TANK, DS/PN: 1.005

Invert Level (m) 20.370

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	66.0	1.500	66.0	1.501	0.0

©1982-2017 XP Solutions

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 Coeffiecient	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	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	17.900	Cv (Winter)	0.840

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, 180, 240, 360
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S0	180 Winter	100	+40%	100/120 Winter				21.778
2.000	S4	180 Winter	100	+40%	100/15 Summer				21.778
1.001	S1	180 Winter	100	+40%	30/60 Winter				21.777
1.002	S2	180 Winter	100	+40%	30/30 Winter				21.775
1.003	S3	180 Winter	100	+40%	30/15 Winter				21.770
1.004	S5	180 Winter	100	+40%	30/15 Summer				21.766
1.005	TANK	180 Winter	100	+40%	1/15 Winter				21.763
1.006	S6	180 Winter	100	+40%	1/15 Summer				21.751

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S0	0.043	0.000	0.09		4.1	SURCHARGED	
2.000	S4	0.553	0.000	0.11		7.3	SURCHARGED	
1.001	S1	0.782	0.000	0.27		16.3	SURCHARGED	
1.002	S2	0.835	0.000	0.45		23.7	SURCHARGED	
1.003	S3	0.950	0.000	0.40		31.3	SURCHARGED	

©1982-2017 XP Solutions

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.004	S5	1.046	0.000	0.52		32.2	SURCHARGED	
1.005	TANK	1.243	0.000	0.40		5.2	SURCHARGED	
1.006	S6	1.281	0.000	0.09		4.9	SURCHARGED	

©1982-2017 XP Solutions