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11 Tungsten Building George Street Fishersgate BN41 1RA	Manor Nursery Angmering West Sussex	
Date 28/06/2019 File Planning Network File.MDX	Designed by S Burgess Checked by SRD	
Innovyze	Network 2017.1.2	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for NETWORK 9.SWS

Pipe Sizes NETWORK 9 Manhole Sizes NETWORK 9

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.600	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.500
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	0.75
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for NETWORK 9.SWS

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
1.000	29.704	0.289	103.0	0.012	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	12.113	0.118	103.0	0.003	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	32.805	0.319	103.0	0.015	5.00	0.0	0.600	o	100	Pipe/Conduit	
2.001	4.967	0.088	56.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.002	2.107	0.021	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)
1.000	50.00	5.65	15.300	0.012	0.0	0.0	0.0	0.76	5.9	1.6
1.001	50.00	5.92	15.012	0.015	0.0	0.0	0.0	0.76	5.9	2.0
2.000	50.00	5.72	15.300	0.015	0.0	0.0	0.0	0.76	5.9	2.0
2.001	50.00	5.80	14.981	0.015	0.0	0.0	0.0	1.02	8.0	2.0
1.002	50.00	5.97	14.894	0.030	0.0	0.0	0.0	0.76	6.0	4.1

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PIPELINE SCHEDULES for NETWORK 9.SWS

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	100	1	15.300	15.300	0.500	Open Manhole	1200
1.001	o	100	2	16.125	15.012	1.014	Open Manhole	1200
2.000	o	100	5	15.300	15.300	0.500	Open Manhole	1200
2.001	o	100	6	16.500	14.981	1.419	Open Manhole	1200
1.002	o	100	3	16.500	14.894	1.506	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	29.704	103.0	2	16.125	15.012	1.014	Open Manhole	1200
1.001	12.113	103.0	3	16.500	14.894	1.506	Open Manhole	1200
2.000	32.805	103.0	6	16.500	14.981	1.419	Open Manhole	1200
2.001	4.967	56.8	3	16.500	14.894	1.506	Open Manhole	1200
1.002	2.107	102.8	4	16.500	14.873	1.527	Open Manhole	0

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Summary of Critical Results by Maximum Level (Rank 1) for NETWORK 9.SWS

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 0
 Number of Online Controls 0 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) 19.500 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, 240, 360, 480, 960, 1440
 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)
1.000	1	15 Winter	100	+40%	100/15	Summer			15.531
1.001	2	15 Winter	100	+40%	100/15	Summer			15.289
2.000	5	15 Winter	100	+40%	100/15	Summer			15.624
2.001	6	15 Winter	100	+40%	100/15	Summer			15.226
1.002	3	15 Winter	100	+40%	100/15	Summer			15.157

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	1	0.131	0.000	0.94		5.4	SURCHARGED	
1.001	2	0.177	0.000	1.07		6.0	SURCHARGED	
2.000	5	0.224	0.000	1.14		6.6	FLOOD RISK	
2.001	6	0.145	0.000	0.89		6.2	SURCHARGED	
1.002	3	0.164	0.000	3.04		12.1	SURCHARGED	

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