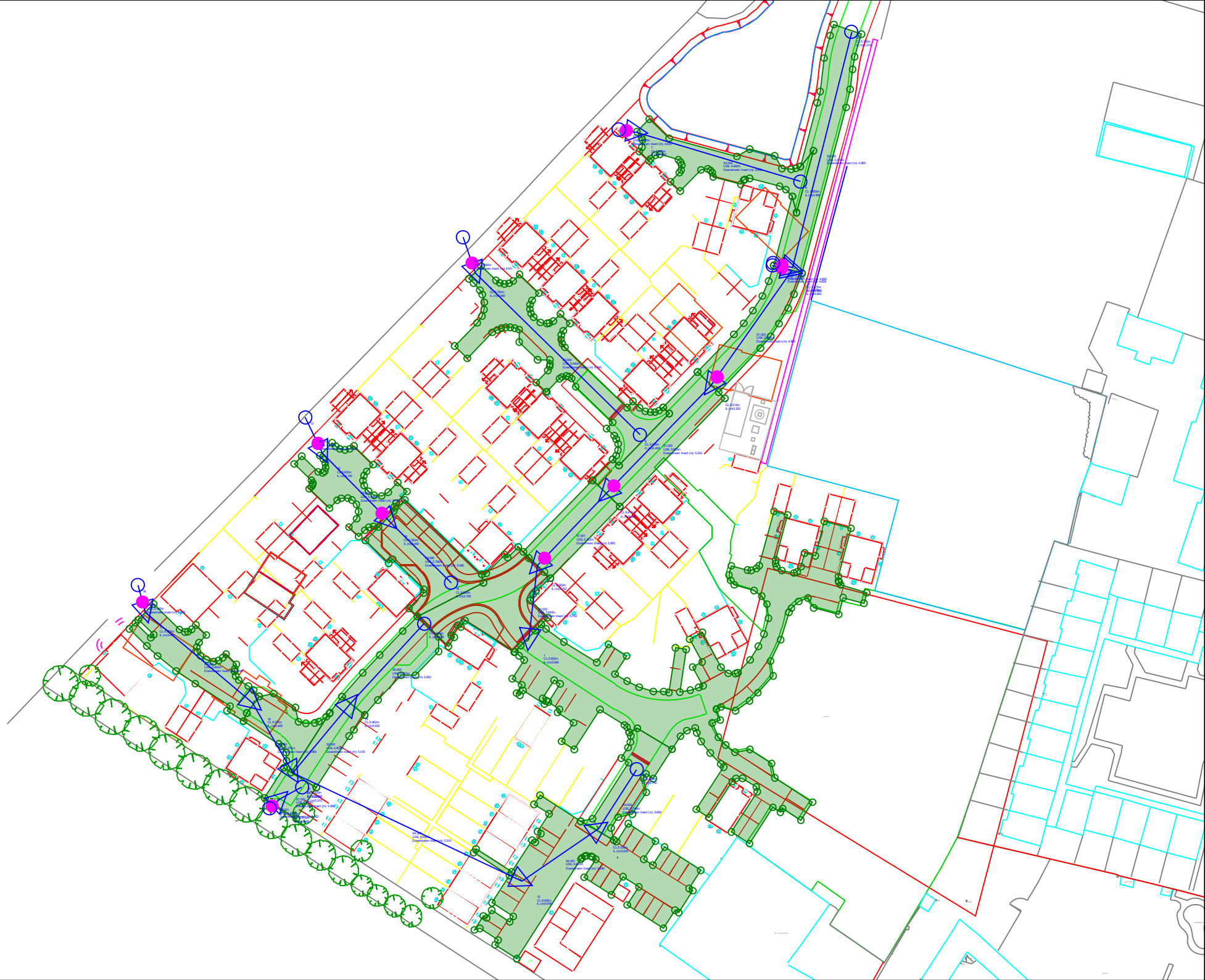




STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model			
Return Period (years)	10	Volumetric Runoff Coeff.	0.750
		PIMP (%)	100
FEH Rainfall Version	2013	Add Flow / Climate Change (%)	0
Site Location	GB 497682 103581 SU 97682 03581	Minimum Backdrop Height (m)	0.200
Data Type	Point	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	0.100
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	0.50
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm at outfall (pipe S1.004)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.160	4-8	0.089

Total Area Contributing (ha) = 0.249

Total Pipe Volume (m³) = 7.960

Time Area Diagram at outfall (pipe S2.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.025	4-8	0.001

Total Area Contributing (ha) = 0.026

Total Pipe Volume (m³) = 3.101

Time Area Diagram at outfall (pipe S3.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.044	4-8	0.002

Total Area Contributing (ha) = 0.046

Total Pipe Volume (m³) = 4.402

Time Area Diagram at outfall 16 (pipe S4.005)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.056	4-8	0.104	8-12	0.006

Total Area Contributing (ha) = 0.167

Total Pipe Volume (m³) = 11.070

Time Area Diagram at outfall 12 (pipe S6.002)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.052	4-8	0.003

Total Area Contributing (ha) = 0.055

Total Pipe Volume (m³) = 3.640

Odyssey		Page 3
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Time Area Diagram at outfall (pipe S7.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.007	4-8	0.000

Total Area Contributing (ha) = 0.007

Total Pipe Volume (m³) = 0.642

Time Area Diagram at outfall (pipe S8.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.035	4-8	0.001

Total Area Contributing (ha) = 0.037

Total Pipe Volume (m³) = 4.325

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	k (l/s)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	17.152	0.088	194.9	0.143	5.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.25	5.840	0.143	0.0	0.0	0.0	1.12	79.4	19.4

Odyssey		Page 4
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

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
S1.001	23.234	0.087	267.1	0.036	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.002	34.838	0.463	75.2	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.003	32.674	0.337	97.0	0.027	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.004	4.720	0.007	674.3	0.022	0.00	0.0	0.600	o	300	Pipe/Conduit		
S2.000	39.629	0.150	264.2	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S2.001	4.246	0.005	849.2	0.026	0.00	0.0	0.600	o	300	Pipe/Conduit		
S3.000	53.477	0.500	107.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S3.001	8.795	0.029	300.0	0.046	0.00	0.0	0.600	o	300	Pipe/Conduit		
S4.000	16.257	0.095	171.1	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S4.001	21.524	0.005	4304.8	0.018	0.00	0.0	0.600	o	300	Pipe/Conduit		
S4.002	58.916	0.125	471.3	0.075	0.00	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)
S1.001	50.00	5.66	5.752	0.179	0.0	0.0	0.0	0.96	67.7	24.3
S1.002	50.00	5.98	5.665	0.199	0.0	0.0	0.0	1.81	128.3	27.0
S1.003	50.00	6.32	5.202	0.227	0.0	0.0	0.0	1.60	112.9	30.7
S1.004	50.00	6.45	4.865	0.249	0.0	0.0	0.0	0.60	42.3	33.7
S2.000	50.00	5.69	4.990	0.000	0.0	0.0	0.0	0.96	68.0	0.0
S2.001	50.00	5.82	4.840	0.026	0.0	0.0	0.0	0.53	37.6	3.5
S3.000	50.00	5.59	5.440	0.000	0.0	0.0	0.0	1.52	107.4	0.0
S3.001	50.00	5.75	4.940	0.046	0.0	0.0	0.0	0.90	63.8	6.3
S4.000	50.00	5.23	5.740	0.000	0.0	0.0	0.0	1.20	84.7	0.0
S4.001	50.00	6.78	5.645	0.018	0.0	0.0	0.0	0.23	16.3	2.4
S4.002	50.00	8.93	5.640	0.093	0.0	0.0	0.0	0.46	8.1«	12.5

Odyssey		Page 5
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

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
S5.000	25.181	0.158	159.4	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S5.001	21.041	0.137	153.6	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit		
S4.003	18.604	0.050	372.1	0.014	0.00	0.0	0.600	o	300	Pipe/Conduit		
S4.004	32.668	0.025	1306.7	0.015	0.00	0.0	0.600	o	300	Pipe/Conduit		
S4.005	6.598	0.150	44.0	0.026	0.00	0.0	0.600	o	300	Pipe/Conduit		
S6.000	20.228	0.300	67.4	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S6.001	22.076	0.350	63.1	0.032	0.00	0.0	0.600	o	300	Pipe/Conduit		
S6.002	9.198	0.100	92.0	0.022	0.00	0.0	0.600	o	300	Pipe/Conduit		
S7.000	5.796	0.050	115.9	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit		
S7.001	3.282	0.003	1094.0	0.007	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)
S5.000	50.00	5.34	5.810	0.000	0.0	0.0	0.0	1.24	87.8	0.0
S5.001	50.00	5.61	5.652	0.020	0.0	0.0	0.0	1.27	89.5	2.7
S4.003	50.00	9.32	5.515	0.126	0.0	0.0	0.0	0.81	57.2	17.1
S4.004	50.00	10.59	5.465	0.141	0.0	0.0	0.0	0.43	30.1	19.1
S4.005	50.00	10.64	5.440	0.167	0.0	0.0	0.0	2.38	168.0	22.6
S6.000	50.00	5.18	5.790	0.000	0.0	0.0	0.0	1.92	135.5	0.0
S6.001	50.00	5.36	5.490	0.032	0.0	0.0	0.0	1.98	140.2	4.4
S6.002	50.00	5.45	5.140	0.055	0.0	0.0	0.0	1.64	115.9	7.4
S7.000	50.00	5.07	5.515	0.000	0.0	0.0	0.0	1.46	103.2	0.0
S7.001	50.00	5.18	5.465	0.007	0.0	0.0	0.0	0.47	33.0	1.0

Odyssey		Page 6
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

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
S8.000	56.465	0.445	126.9	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S8.001	4.726	0.005	945.2	0.037	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)
S8.000	50.00	5.67	5.310	0.000	0.0	0.0	0.0	1.39	98.6	0.0
S8.001	50.00	5.83	4.865	0.037	0.0	0.0	0.0	0.50	35.6	5.0

Odyssey		Page 7
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.143	0.143	0.143
1.001	User	-	100	0.036	0.036	0.036
1.002	User	-	100	0.020	0.020	0.020
1.003	User	-	100	0.027	0.027	0.027
1.004	User	-	100	0.022	0.022	0.022
2.000	-	-	100	0.000	0.000	0.000
2.001	User	-	100	0.026	0.026	0.026
3.000	-	-	100	0.000	0.000	0.000
3.001	User	-	100	0.046	0.046	0.046
4.000	-	-	100	0.000	0.000	0.000
4.001	User	-	100	0.018	0.018	0.018
4.002	User	-	100	0.075	0.075	0.075
5.000	-	-	100	0.000	0.000	0.000
5.001	User	-	100	0.020	0.020	0.020
4.003	User	-	100	0.014	0.014	0.014
4.004	User	-	100	0.015	0.015	0.015
4.005	User	-	100	0.026	0.026	0.026
6.000	-	-	100	0.000	0.000	0.000
6.001	User	-	100	0.032	0.032	0.032
6.002	User	-	100	0.022	0.022	0.022
7.000	-	-	100	0.000	0.000	0.000
7.001	User	-	100	0.007	0.007	0.007
8.000	-	-	100	0.000	0.000	0.000
8.001	User	-	100	0.037	0.037	0.037
				Total	Total	Total
				0.586	0.586	0.586

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)
S1.004		5.675	4.858	0.000	0	0

Odyssey		Page 8
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S2.001		5.650	4.835	0.000	0	0
--------	--	-------	-------	-------	---	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S3.001		5.700	4.911	0.000	0	0
--------	--	-------	-------	-------	---	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S4.005	16	6.300	5.290	0.000	1200	0
--------	----	-------	-------	-------	------	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S6.002	12	6.000	5.040	0.000	1200	0
--------	----	-------	-------	-------	------	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S7.001		6.275	5.462	0.000	0	0
--------	--	-------	-------	-------	---	---

Odyssey		Page 9
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

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)
S8.001		5.675	4.860	0.000	0	0

Odyssey		Page 10
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Online Controls for Storm

Weir Manhole: 2, DS/PN: S1.001, Volume (m³): 1.4

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.332

Weir Manhole: 3, DS/PN: S1.002, Volume (m³): 1.8

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.245

Weir Manhole: 4, DS/PN: S1.003, Volume (m³): 2.6

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 5.782

Pump Manhole: 5, DS/PN: S1.004, Volume (m³): 2.5

Invert Level (m) 4.865

Pump Manhole: 7, DS/PN: S2.001, Volume (m³): 3.0

Invert Level (m) 4.840

Pump Manhole: 9, DS/PN: S3.001, Volume (m³): 4.0

Invert Level (m) 4.940

Pump Manhole: 17, DS/PN: S4.005, Volume (m³): 2.5

Invert Level (m) 5.440

Weir Manhole: 19, DS/PN: S6.001, Volume (m³): 1.6

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.070

Odyssey		Page 11
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Pump Manhole: 20, DS/PN: S6.002, Volume (m³): 1.7

Invert Level (m) 5.140

Pump Manhole: 22, DS/PN: S7.001, Volume (m³): 0.6

Invert Level (m) 5.465

Pump Manhole: 24, DS/PN: S8.001, Volume (m³): 4.2

Invert Level (m) 4.865

Odyssey		Page 12
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Storage Structures for Storm

Porous Car Park Manhole: 1, DS/PN: S1.000

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.840	Depression Storage (mm)	5
Max Percolation (l/s)	220.9	Width (m)	28.2	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	28.2	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 2, DS/PN: S1.001

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	300.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.752	Depression Storage (mm)	5
Max Percolation (l/s)	53.2	Width (m)	6.7	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	28.6	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 3, DS/PN: S1.002

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	300.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.665	Depression Storage (mm)	5
Max Percolation (l/s)	30.7	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	23.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 4, DS/PN: S1.003

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	75.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.202	Depression Storage (mm)	5
Max Percolation (l/s)	46.7	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	35.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 5, DS/PN: S1.004

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	75.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.865	Depression Storage (mm)	5
Max Percolation (l/s)	44.0	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	33.0	Cap Volume Depth (m)	0.600

Odyssey		Page 13
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Porous Car Park Manhole: 7, DS/PN: S2.001

Infiltration Coefficient Base (m/hr)	0.00630	Porosity	0.30	Slope (1:X)	261.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.840	Depression Storage (mm)	5
Max Percolation (l/s)	71.1	Width (m)	6.4	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	40.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 9, DS/PN: S3.001

Infiltration Coefficient Base (m/hr)	0.00612	Porosity	0.30	Slope (1:X)	104.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.940	Depression Storage (mm)	5
Max Percolation (l/s)	116.1	Width (m)	7.6	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	55.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 11, DS/PN: S4.001

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	125.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.645	Depression Storage (mm)	5
Max Percolation (l/s)	41.0	Width (m)	5.9	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	25.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 12, DS/PN: S4.002

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.640	Depression Storage (mm)	5
Max Percolation (l/s)	205.5	Width (m)	27.2	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	27.2	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 14, DS/PN: S5.001

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	140.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.652	Depression Storage (mm)	5
Max Percolation (l/s)	33.6	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	25.2	Cap Volume Depth (m)	0.600

Odyssey		Page 14
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Porous Car Park Manhole: 15, DS/PN: S4.003

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	140.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.515	Depression Storage (mm)	5
Max Percolation (l/s)	27.5	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	20.6	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 16, DS/PN: S4.004

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	127.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.465	Depression Storage (mm)	5
Max Percolation (l/s)	25.7	Width (m)	5.7	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	16.2	Membrane Depth (mm)	0

Porous Car Park Manhole: 17, DS/PN: S4.005

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	352.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.440	Depression Storage (mm)	5
Max Percolation (l/s)	51.3	Width (m)	5.6	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	33.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 19, DS/PN: S6.001

Infiltration Coefficient Base (m/hr)	0.00576	Porosity	0.30	Slope (1:X)	65.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.490	Depression Storage (mm)	5
Max Percolation (l/s)	33.0	Width (m)	5.4	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	22.0	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 20, DS/PN: S6.002

Infiltration Coefficient Base (m/hr)	0.00576	Porosity	0.30	Slope (1:X)	65.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.140	Depression Storage (mm)	5
Max Percolation (l/s)	60.7	Width (m)	10.4	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	21.0	Cap Volume Depth (m)	0.600

Odyssey		Page 15
Tuscany House White Hart Lane Baskingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving (exc drives)	
Date 29/09/2020 21:06 File perm paving.MDX	Designed by AK Checked by	
XP Solutions	Network 2020.1	

Porous Car Park Manhole: 22, DS/PN: S7.001

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	140.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.465	Depression Storage (mm)	5
Max Percolation (l/s)	8.8	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	6.6	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 24, DS/PN: S8.001

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	116.7
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.865	Depression Storage (mm)	5
Max Percolation (l/s)	76.0	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	57.0	Cap Volume Depth (m)	0.600

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

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 11 Number of Storage Structures 17 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Site Location GB 497682 103581 SU 97682 03581 Cv (Summer) 0.750
FEH Rainfall Version 2013 Data Type Point Cv (Winter) 0.840

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

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH		Event	Duration (mins)	US/CL (m)	Water Flooded		Flow / Overflow (l/s)	Total		Maximum Velocity (m/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
	Name					Level (m)	Volume (m³)		Infil. Vol (m³)	Maximum Vol (m³)				
S1.000	1	10080 minute	100 year Winter I+40%	10080	6.650	6.354	0.000	0.01	0.000	122.813	0.1	12182	0.7	FLOOD RISK
S1.001	2	10080 minute	100 year Winter I+40%	10080	6.562	6.354	0.000	0.01	1508.415	33.177	0.0	13201	0.7	FLOOD RISK
S1.002	3	10080 minute	100 year Winter I+40%	10080	6.475	6.266	0.000	0.01	602.143	20.394	0.4	5378	0.6	FLOOD RISK
S1.003	4	10080 minute	100 year Winter I+40%	10080	6.012	5.799	0.000	0.00	711.686	20.682	0.2	2894	0.4	FLOOD RISK
S1.004	5	10080 minute	100 year Winter I+40%	10080	5.675	5.337	0.000	0.00	528.365	14.051	0.0	1379	0.0	SURCHARGED
S2.000	6	360 minute	100 year Winter I+40%	360	5.800	5.091	0.000	0.00		0.027	0.0		0.0	OK
S2.001	7	360 minute	100 year Winter I+40%	360	5.650	5.091	0.000	0.00	643.196	15.018	0.0		0.0	OK

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm															
US/MH		Event	Duration (mins)	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Total Infil. Vol (m³)	Maximum Vol (m³)	Maximum Velocity (m/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	
PN	Name														
S3.000	8	15 minute 100 year Summer I+40%	15	6.250	5.440	0.000	0.00			0.000	0.0		0.0	OK	
S3.001	9	600 minute 100 year Winter I+40%	600	5.750	5.416	0.000	0.00		1056.754	29.423	0.0		0.0	SURCHARGED	
S4.000	10	2160 minute 100 year Winter I+40%	2160	6.580	5.923	0.000	0.00			0.050	0.0		0.1	OK	
S4.001	11	2160 minute 100 year Winter I+40%	2160	6.550	5.923	0.000	0.01		0.000	8.816	0.0	1849	0.2	OK	
S4.002	12	2160 minute 100 year Winter I+40%	2160	6.450	5.923	0.000	0.08		0.000	64.138	0.3		0.6	SURCHARGED	
S5.000	13	2160 minute 100 year Winter I+40%	2160	6.620	5.921	0.000	0.00			0.030	0.0		0.0	OK	
S5.001	14	2160 minute 100 year Winter I+40%	2160	6.462	5.921	0.000	0.00		486.220	7.664	0.1	1835	0.3	OK	
S4.003	15	2160 minute 100 year Winter I+40%	2160	6.325	5.921	0.000	0.01		570.807	12.441	0.1		0.7	SURCHARGED	
S4.004	16	2160 minute 100 year Winter I+40%	2160	6.275	5.921	0.000	0.02		589.615	12.268	0.1		0.5	SURCHARGED	
S4.005	17	2160 minute 100 year Winter I+40%	2160	6.250	5.921	0.000	0.00		1267.691	26.476	0.0		0.0	SURCHARGED	
S6.000	18	240 minute 100 year Winter I+40%	240	6.600	6.098	0.000	0.00			0.086	0.0		0.1	SURCHARGED	
S6.001	19	360 minute 100 year Winter I+40%	360	6.300	6.098	0.000	0.01		604.787	17.202	0.6		1.4	FLOOD RISK	
S6.002	20	720 minute 100 year Winter I+40%	720	5.950	5.591	0.000	0.00		590.869	20.328	0.0		0.0	SURCHARGED	
S7.000	21	960 minute 100 year Winter I+40%	960	6.325	5.982	0.000	0.00			0.131	0.0		0.1	SURCHARGED	
S7.001	22	960 minute 100 year Winter I+40%	960	6.275	5.982	0.000	0.00		152.615	5.203	0.0		0.0	FLOOD RISK	
S8.000	23	600 minute 100 year Winter I+40%	600	6.120	5.359	0.000	0.00			0.012	0.0		0.0	OK	
S8.001	24	600 minute 100 year Winter I+40%	600	5.675	5.359	0.000	0.00		839.046	23.635	0.0		0.0	SURCHARGED	
©1982-2020 Innovyze															