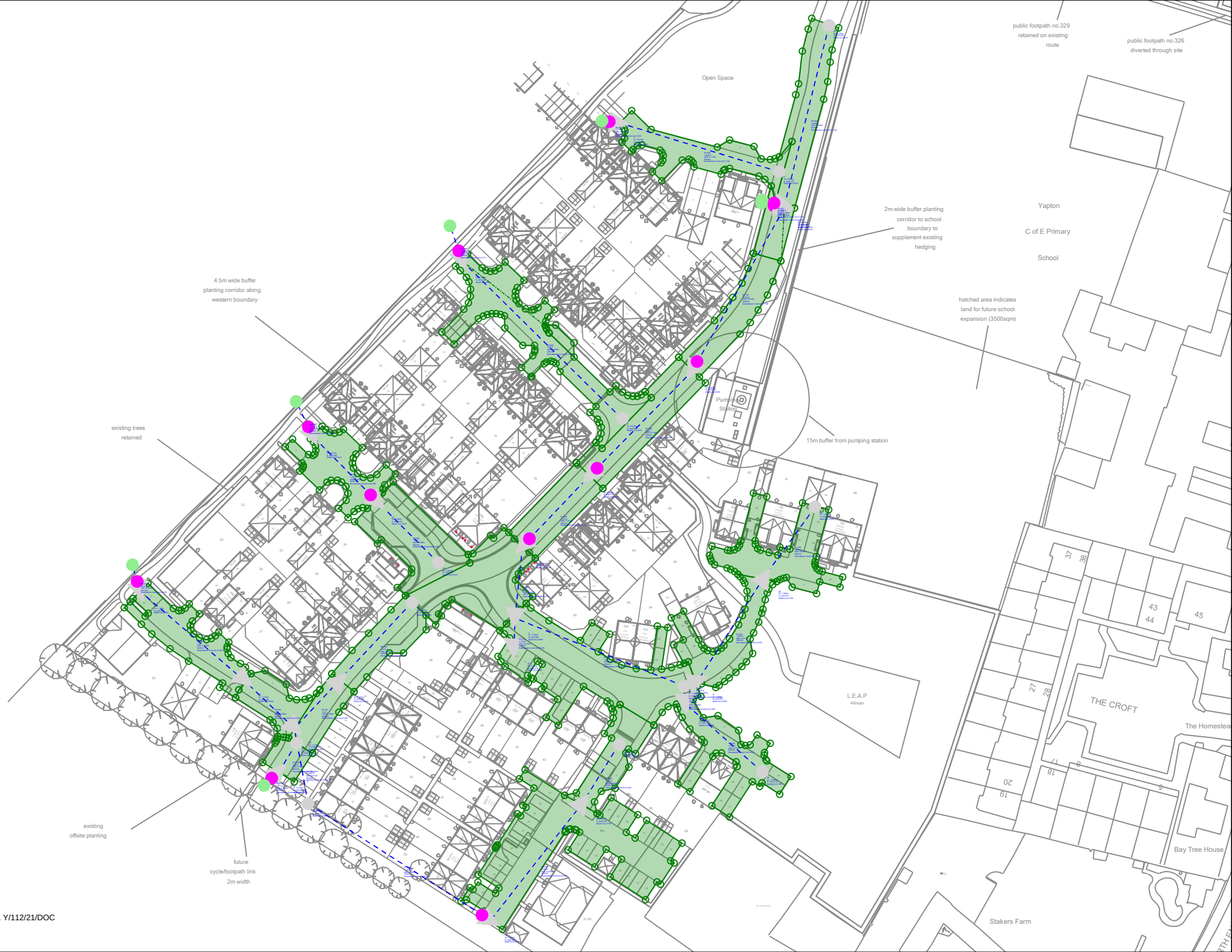




Odyssey		Page 1
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving_revD	
Date 12/07/2021 10:42 File 19-156 70 Units Perm Paving Strategy.MDX	Designed by AK Checked by	
Micro Drainage	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 70 Units_Perm Paving_RevD

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 70 Units_Perm Paving_RevD at outfall (pipe S1.008)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.146	4-8	0.113

Total Area Contributing (ha) = 0.259

Total Pipe Volume (m³) = 18.246

Time Area Diagram at outfall (pipe S4.001)

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 S5.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.046	4-8	0.002

Total Area Contributing (ha) = 0.048

Total Pipe Volume (m³) = 4.402

Time Area Diagram at outfall 16 (pipe S6.004)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.026	4-8	0.025	8-12	0.062	12-16	0.050

Total Area Contributing (ha) = 0.163

Total Pipe Volume (m³) = 11.725

Time Area Diagram at outfall 12 (pipe S8.002)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.051	4-8	0.003

Total Area Contributing (ha) = 0.055

Total Pipe Volume (m³) = 3.640

Time Area Diagram at outfall (pipe S9.001)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.026	4-8	0.001

Total Area Contributing (ha) = 0.028

Total Pipe Volume (m³) = 3.507

Time Area Diagram at outfall 16 (pipe S10.001)

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) = 0.903

Network Design Table for 70 Units_Perm Paving_RevD

« - 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	20.486	0.038	539.1	0.000	5.00	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	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.51	6.553	0.000	0.0	0.0	0.0	0.67	47.4	0.0

Network Design Table for 70 Units_Perm Paving_RevD

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	29.127	0.060	485.5	0.030	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.002	3.793	0.000	9900.0	0.023	0.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	24.396	0.063	387.2	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S2.001	4.274	0.000	9900.0	0.028	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.003	43.429	0.095	457.1	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.000	7.380	0.010	738.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.004	17.152	0.045	381.2	0.064	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	23.234	0.200	116.2	0.036	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.006	34.838	0.500	69.7	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.007	44.469	0.425	104.6	0.027	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.008	5.544	0.007	791.9	0.030	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)
S1.001	50.00	6.20	6.515	0.030	0.0	0.0	0.0	0.71	50.0	4.1
S1.002	50.00	6.62	6.455	0.053	0.0	0.0	0.0	0.15	10.5	7.2
S2.000	50.00	5.51	6.518	0.000	0.0	0.0	0.0	0.79	56.0	0.0
S2.001	50.00	5.99	6.455	0.028	0.0	0.0	0.0	0.15	10.5	3.8
S1.003	50.00	7.61	6.455	0.081	0.0	0.0	0.0	0.73	51.5	11.0
S3.000	50.00	5.22	6.370	0.000	0.0	0.0	0.0	0.57	40.4	0.0
S1.004	50.00	7.97	6.360	0.145	0.0	0.0	0.0	0.80	56.5	19.6
S1.005	50.00	8.24	6.315	0.180	0.0	0.0	0.0	1.46	103.0	24.4
S1.006	50.00	8.54	6.115	0.201	0.0	0.0	0.0	1.89	133.3	27.2
S1.007	50.00	9.03	5.615	0.228	0.0	0.0	0.0	1.54	108.6	30.9
S1.008	50.00	9.19	5.190	0.259	0.0	0.0	0.0	0.55	38.9	35.0

Network Design Table for 70 Units_Perm Paving_RevD

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
S4.000	39.629	0.075	528.4	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S4.001	4.246	0.005	849.2	0.026	0.00	0.0	0.600	o	300	Pipe/Conduit	
S5.000	53.477	0.540	99.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S5.001	8.795	0.029	300.0	0.048	0.00	0.0	0.600	o	300	Pipe/Conduit	
S6.000	25.181	0.115	219.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S6.001	15.649	0.000	0.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S7.000	16.257	0.046	353.4	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	35.633	0.070	509.0	0.018	0.00	0.0	0.600	o	300	Pipe/Conduit	
S7.002	51.624	0.037	1400.0	0.074	0.00	0.0	0.600	o	150	Pipe/Conduit	
S7.003	18.239	0.013	1403.0	0.000	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)
S4.000	50.00	5.98	5.175	0.000	0.0	0.0	0.0	0.68	47.9	0.0
S4.001	50.00	6.11	5.100	0.026	0.0	0.0	0.0	0.53	37.6	3.5
S5.000	50.00	5.56	5.940	0.000	0.0	0.0	0.0	1.58	111.7	0.0
S5.001	50.00	5.73	5.400	0.048	0.0	0.0	0.0	0.90	63.8	6.5
S6.000	50.00	5.40	6.415	0.000	0.0	0.0	0.0	1.06	74.8	0.0
S6.001	50.00	7.15	6.300	0.020	0.0	0.0	0.0	0.15	10.5	2.7
S7.000	50.00	5.33	6.466	0.000	0.0	0.0	0.0	0.83	58.7	0.0
S7.001	50.00	6.19	6.420	0.018	0.0	0.0	0.0	0.69	48.8	2.4
S7.002	50.00	9.49	6.350	0.092	0.0	0.0	0.0	0.26	4.6<	12.4
S7.003	50.00	10.66	6.313	0.092	0.0	0.0	0.0	0.26	4.6<	12.4

Network Design Table for 70 Units_Perm Paving_RevD

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
S6.002	16.420	0.000	0.0	0.012	0.00	0.0	0.600	o	300	Pipe/Conduit	
S6.003	32.668	0.000	0.0	0.014	0.00	0.0	0.600	o	300	Pipe/Conduit	
S6.004	6.598	0.150	44.0	0.026	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.000	20.228	0.200	101.1	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S8.001	22.076	0.230	96.0	0.032	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.002	9.198	0.100	92.0	0.022	0.00	0.0	0.600	o	300	Pipe/Conduit	
S9.000	44.135	0.130	339.5	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S9.001	5.483	0.005	1096.6	0.028	0.00	0.0	0.600	o	300	Pipe/Conduit	
S10.000	7.809	0.390	20.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
S10.001	4.968	0.015	331.2	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)
S6.002	50.00	12.50	6.300	0.123	0.0	0.0	0.0	0.15	10.5«	16.7
S6.003	50.00	16.15	6.300	0.138	0.0	0.0	0.0	0.15	10.5«	18.7
S6.004	50.00	16.20	6.300	0.163	0.0	0.0	0.0	2.38	168.0	22.1
S8.000	50.00	5.22	6.430	0.000	0.0	0.0	0.0	1.56	110.5	0.0
S8.001	50.00	5.44	6.230	0.032	0.0	0.0	0.0	1.61	113.5	4.4
S8.002	50.00	5.54	6.000	0.055	0.0	0.0	0.0	1.64	115.9	7.4
S9.000	50.00	5.87	5.320	0.000	0.0	0.0	0.0	0.85	59.9	0.0
S9.001	50.00	6.06	5.190	0.028	0.0	0.0	0.0	0.47	33.0	3.8
S10.000	50.00	5.04	6.300	0.000	0.0	0.0	0.0	3.53	249.5	0.0
S10.001	50.00	5.13	5.910	0.007	0.0	0.0	0.0	0.86	60.7	1.0

Manhole Schedules for 70 Units_Perm Paving_RevD											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
31	7.250	0.697	Open Manhole	1200	S1.000	6.553	300				
26	7.280	0.765	Open Manhole	1200	S1.001	6.515	300	S1.000	6.515	300	
27	7.280	0.825	Open Manhole	1200	S1.002	6.455	300	S1.001	6.455	300	
28	7.300	0.782	Open Manhole	1200	S2.000	6.518	300				
29	7.300	0.845	Open Manhole	1200	S2.001	6.455	300	S2.000	6.455	300	
30	7.240	0.785	Open Manhole	1200	S1.003	6.455	300	S1.002	6.455	300	
								S2.001	6.455	300	
32	7.315	0.945	Open Manhole	1200	S3.000	6.370	300				
1	7.240	0.880	Open Manhole	600	S1.004	6.360	300	S1.003	6.360	300	
								S3.000	6.360	300	
2	7.125	0.810	Open Manhole	600	S1.005	6.315	300	S1.004	6.315	300	
3	6.925	0.810	Open Manhole	600	S1.006	6.115	300	S1.005	6.115	300	
4	6.425	0.810	Open Manhole	600	S1.007	5.615	300	S1.006	5.615	300	
5	6.000	0.810	Open Manhole	600	S1.008	5.190	300	S1.007	5.190	300	
	6.025	0.842	Open Manhole	0		OUTFALL		S1.008	5.183	300	
6	5.985	0.810	Open Manhole	600	S4.000	5.175	300				
7	5.910	0.810	Open Manhole	600	S4.001	5.100	300	S4.000	5.100	300	
	5.910	0.815	Open Manhole	0		OUTFALL		S4.001	5.095	300	
8	6.750	0.810	Open Manhole	600	S5.000	5.940	300				
9	6.210	0.810	Open Manhole	600	S5.001	5.400	300	S5.000	5.400	300	
	6.210	0.839	Open Manhole	0		OUTFALL		S5.001	5.371	300	
10	7.225	0.810	Open Manhole	600	S6.000	6.415	300				
11	7.110	0.810	Open Manhole	600	S6.001	6.300	300	S6.000	6.300	300	
12	7.235	0.769	Open Manhole	600	S7.000	6.466	300				
13	7.160	0.740	Open Manhole	600	S7.001	6.420	300	S7.000	6.420	300	
14	7.160	0.810	Open Manhole	600	S7.002	6.350	150	S7.001	6.350	300	
15	7.135	0.822	Open Manhole	1200	S7.003	6.313	150	S7.002	6.313	150	

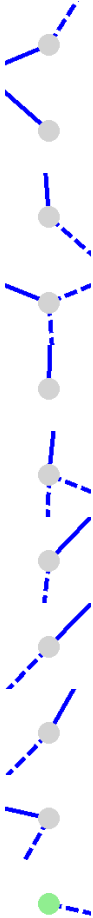
Manhole Schedules for 70 Units_Perm Paving_RevD

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
16	7.110	0.810	Open Manhole	600	S6.002	6.300	300	S6.001	6.300	300	
17	7.120	0.820	Open Manhole	600	S6.003	6.300	300	S7.003	6.300	150	
18	7.125	0.825	Open Manhole	600	S6.004	6.300	300	S6.002	6.300	300	
16	7.110	0.960	Open Manhole	1200		OUTFALL		S6.003	6.300	300	
19	7.240	0.810	Open Manhole	600	S8.000	6.430	300	S6.004	6.150	300	
20	7.040	0.810	Open Manhole	600	S8.001	6.230	300	S8.000	6.230	300	
21	6.810	0.810	Open Manhole	600	S8.002	6.000	300	S8.001	6.000	300	
12	6.810	0.910	Open Manhole	1200		OUTFALL		S8.002	5.900	300	
22	6.130	0.810	Open Manhole	600	S9.000	5.320	300				
23	6.000	0.810	Open Manhole	600	S9.001	5.190	300	S9.000	5.190	300	
	6.025	0.840	Open Manhole	0		OUTFALL		S9.001	5.185	300	
24	7.110	0.810	Open Manhole	1200	S10.000	6.300	300				
25	6.720	0.810	Open Manhole	600	S10.001	5.910	300	S10.000	5.910	300	
16	6.620	0.725	Open Manhole	1200		OUTFALL		S10.001	5.895	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
31	497675.988	103621.221	497675.988	103621.221	Required	
26	497664.048	103604.574	497664.048	103604.574	Required	



Manhole Schedules for 70 Units_Perm Paving_RevD

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
27	497648.366	103580.029	497648.366	103580.029	Required	
28	497663.480	103558.179	497663.480	103558.179	Required	
29	497645.180	103574.311	497645.180	103574.311	Required	
30	497644.864	103578.573	497644.864	103578.573	Required	
32	497604.377	103587.383	497604.377	103587.383	Required	
1	497604.565	103594.760	497604.565	103594.760	Required	
2	497606.401	103611.813	497606.401	103611.813	Required	
3	497622.457	103628.608	497622.457	103628.608	Required	
4	497646.720	103653.607	497646.720	103653.607	Required	
5	497668.716	103692.255	497668.716	103692.255	Required	
	497663.308	103693.476			No Entry	

Manhole Schedules for 70 Units_Perm Paving_RevD

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
6	497667.476	103700.963	497667.476	103700.963	Required	
7	497629.570	103712.523	497629.570	103712.523	Required	
	497625.353	103713.018			No Entry	
8	497630.231	103642.230	497630.231	103642.230	Required	
9	497592.137	103679.762	497592.137	103679.762	Required	
	497589.202	103688.053			No Entry	
10	497580.247	103598.410	497580.247	103598.410	Required	
11	497563.075	103579.993	497563.075	103579.993	Required	
12	497629.512	103564.654	497629.512	103564.654	Required	
13	497620.747	103550.962	497620.747	103550.962	Required	
14	497598.940	103522.782	497598.940	103522.782	Required	

Manhole Schedules for 70 Units_Perm Paving_RevD

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
15	497555.469	103550.626	497555.469	103550.626	Required	
16	497552.351	103568.596	497552.351	103568.596	Required	
17	497540.506	103579.968	497540.506	103579.968	Required	
18	497515.559	103601.059	497515.559	103601.059	Required	
16	497513.774	103607.411			No Entry	
19	497586.424	103607.940	497586.424	103607.940	Required	
20	497572.134	103622.258	497572.134	103622.258	Required	
21	497556.649	103637.992	497556.649	103637.992	Required	
12	497552.659	103646.280			No Entry	
22	497679.296	103735.691	497679.296	103735.691	Required	
23	497668.697	103692.848	497668.697	103692.848	Required	

Manhole Schedules for 70 Units_Perm Paving_RevD

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
	497663.384	103694.201			No Entry	
24	497552.808	103564.990	497552.808	103564.990	Required	
25	497548.654	103558.377	497548.654	103558.377	Required	
16	497545.047	103554.961			No Entry	

Area Summary for 70 Units_Perm Paving_RevD

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	0.030	0.030	0.030
1.002	User	-	100	0.023	0.023	0.023
2.000	-	-	100	0.000	0.000	0.000
2.001	User	-	100	0.028	0.028	0.028
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.000	0.000	0.000
1.004	User	-	100	0.064	0.064	0.064
1.005	User	-	100	0.036	0.036	0.036
1.006	User	-	100	0.020	0.020	0.020
1.007	User	-	100	0.027	0.027	0.027
1.008	User	-	100	0.022	0.022	0.022
	User	-	100	0.009	0.009	0.030
4.000	-	-	100	0.000	0.000	0.000
4.001	User	-	100	0.026	0.026	0.026
5.000	-	-	100	0.000	0.000	0.000
5.001	User	-	100	0.046	0.046	0.046
	User	-	100	0.002	0.002	0.048
6.000	-	-	100	0.000	0.000	0.000
6.001	User	-	100	0.020	0.020	0.020
7.000	-	-	100	0.000	0.000	0.000
7.001	User	-	100	0.018	0.018	0.018
7.002	User	-	100	0.074	0.074	0.074
7.003	-	-	100	0.000	0.000	0.000
6.002	User	-	100	0.012	0.012	0.012
6.003	User	-	100	0.014	0.014	0.014
6.004	User	-	100	0.026	0.026	0.026
8.000	-	-	100	0.000	0.000	0.000
8.001	User	-	100	0.032	0.032	0.032
8.002	User	-	100	0.022	0.022	0.022
9.000	-	-	100	0.000	0.000	0.000
9.001	User	-	100	0.028	0.028	0.028
10.000	-	-	100	0.000	0.000	0.000
10.001	User	-	100	0.007	0.007	0.007
				Total	Total	Total
				0.586	0.586	0.586

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.008		6.025	5.183	0.000	0	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S4.001		5.910	5.095	0.000	0	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S5.001		6.210	5.371	0.000	0	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S6.004	16	7.110	6.150	0.000	1200	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S8.002	12	6.810	5.900	0.000	1200	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S9.001		6.025	5.185	0.000	0	0

Free Flowing Outfall Details for 70 Units_Perm Paving_RevD

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S10.001	16	6.620	5.895	0.000	1200	0

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Online Controls for 70 Units_Perm Paving_RevD

Weir Manhole: 2, DS/PN: S1.005, Volume (m³): 1.4

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.895

Weir Manhole: 3, DS/PN: S1.006, Volume (m³): 1.8

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.695

Weir Manhole: 4, DS/PN: S1.007, Volume (m³): 2.6

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.195

Pump Manhole: 5, DS/PN: S1.008, Volume (m³): 3.3

Invert Level (m) 5.190

Pump Manhole: 7, DS/PN: S4.001, Volume (m³): 3.0

Invert Level (m) 5.100

Pump Manhole: 9, DS/PN: S5.001, Volume (m³): 4.0

Invert Level (m) 5.400

Orifice Manhole: 14, DS/PN: S7.002, Volume (m³): 2.7

Diameter (m) 0.100 Discharge Coefficient 0.600 Invert Level (m) 6.350

Pump Manhole: 18, DS/PN: S6.004, Volume (m³): 2.5

Invert Level (m) 6.300

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Weir Manhole: 20, DS/PN: S8.001, Volume (m³): 1.6

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 6.810

Pump Manhole: 21, DS/PN: S8.002, Volume (m³): 1.7

Invert Level (m) 6.000

Pump Manhole: 23, DS/PN: S9.001, Volume (m³): 3.3

Invert Level (m) 5.190

Pump Manhole: 25, DS/PN: S10.001, Volume (m³): 0.7

Invert Level (m) 5.910

Storage Structures for 70 Units_Perm Paving_RevD

Porous Car Park Manhole: 26, DS/PN: S1.001

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	500.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.515	Depression Storage (mm)	5
Max Percolation (l/s)	84.4	Width (m)	16.0	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	19.0	Membrane Depth (mm)	210

Porous Car Park Manhole: 27, DS/PN: S1.002

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	500.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.455	Depression Storage (mm)	5
Max Percolation (l/s)	34.2	Width (m)	4.1	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	30.0	Membrane Depth (mm)	210

Porous Car Park Manhole: 29, DS/PN: S2.001

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	500.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.455	Depression Storage (mm)	5
Max Percolation (l/s)	35.9	Width (m)	4.1	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	31.5	Membrane Depth (mm)	210

Porous Car Park Manhole: 32, DS/PN: S3.000

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	498.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.370	Depression Storage (mm)	5
Max Percolation (l/s)	29.0	Width (m)	5.0	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	20.9	Membrane Depth (mm)	210

Porous Car Park Manhole: 1, DS/PN: S1.004

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	493.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.360	Depression Storage (mm)	5
Max Percolation (l/s)	62.4	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	46.8	Membrane Depth (mm)	210

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Porous Car Park Manhole: 2, DS/PN: S1.005

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	455.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.315	Depression Storage (mm)	5
Max Percolation (l/s)	53.1	Width (m)	7.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	24.5	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 3, DS/PN: S1.006

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	116.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.115	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: S1.007

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	70.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.615	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: S1.008

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	105.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.190	Depression Storage (mm)	5
Max Percolation (l/s)	60.8	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	45.6	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 7, DS/PN: S4.001

Infiltration Coefficient Base (m/hr)	0.00630	Porosity	0.30	Slope (1:X)	528.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.100	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

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Porous Car Park Manhole: 9, DS/PN: S5.001

Infiltration Coefficient Base (m/hr)	0.00612	Porosity	0.30	Slope (1:X)	99.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.400	Depression Storage (mm)	5
Max Percolation (l/s)	122.2	Width (m)	8.0	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: S6.001

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	219.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	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

Porous Car Park Manhole: 13, DS/PN: S7.001

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	500.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.420	Depression Storage (mm)	5
Max Percolation (l/s)	30.1	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	22.6	Membrane Depth (mm)	210

Porous Car Park Manhole: 14, DS/PN: S7.002

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	500.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.350	Depression Storage (mm)	5
Max Percolation (l/s)	201.6	Width (m)	12.3	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	59.0	Membrane Depth (mm)	210

Porous Car Park Manhole: 16, DS/PN: S6.002

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	Depression Storage (mm)	5
Max Percolation (l/s)	25.2	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	18.9	Cap Volume Depth (m)	0.600

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Porous Car Park Manhole: 17, DS/PN: S6.003

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	Depression Storage (mm)	5
Max Percolation (l/s)	23.8	Width (m)	5.6	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	15.3	Cap Volume Depth (m)	0.600

Porous Car Park Manhole: 18, DS/PN: S6.004

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	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: 20, DS/PN: S8.001

Infiltration Coefficient Base (m/hr)	0.00576	Porosity	0.30	Slope (1:X)	101.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.230	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: 21, DS/PN: S8.002

Infiltration Coefficient Base (m/hr)	0.00576	Porosity	0.30	Slope (1:X)	96.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.000	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

Porous Car Park Manhole: 23, DS/PN: S9.001

Infiltration Coefficient Base (m/hr)	0.00648	Porosity	0.30	Slope (1:X)	339.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.190	Depression Storage (mm)	5
Max Percolation (l/s)	59.1	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	44.3	Cap Volume Depth (m)	0.600

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Porous Car Park Manhole: 25, DS/PN: S10.001

Infiltration Coefficient Base (m/hr)	0.00540	Porosity	0.30	Slope (1:X)	20.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.910	Depression Storage (mm)	5
Max Percolation (l/s)	10.6	Width (m)	4.9	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	7.8	Cap Volume Depth (m)	0.600

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Micro Drainage	Network 2020.1.3	

Summary Wizard of 1440 minute 10 year Summer I+40% for 70 Units_Perm Paving_RevD

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 Coefficient 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 12 Number of Storage Structures 21 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) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
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) 10, 100
Climate Change (%) 40, 40

										Water	Surcharged	Flooded			Maximum	Half Drain	Pipe		
US/MH								US/CL	Level	Depth	Volume	Flow /	Maximum	Velocity		Time	Flow		
PN	Name	Event						(m)	(m)	(m)	(m³)	Cap.	Vol (m³)	(m/s)		(mins)	(l/s)	Status	
S1.000	31	1440	minute	10	year	Summer	I+40%	7.250	6.695	-0.158	0.000	0.00	0.155	0.0				0.0	OK
S1.001	26	1440	minute	10	year	Summer	I+40%	7.280	6.695	-0.120	0.000	0.04	15.566	0.2				1.7	OK
S1.002	27	1440	minute	10	year	Summer	I+40%	7.280	6.695	-0.060	0.000	0.09	9.426	0.2				4.6	OK
S2.000	28	1440	minute	10	year	Summer	I+40%	7.300	6.695	-0.123	0.000	0.00	0.195	0.0				0.1	OK
S2.001	29	1440	minute	10	year	Summer	I+40%	7.300	6.695	-0.060	0.000	0.10	9.517	0.1				4.8	OK
S1.003	30	1440	minute	10	year	Summer	I+40%	7.240	6.716	-0.039	0.000	0.09	0.604	0.2				4.1	OK
S3.000	32	1440	minute	10	year	Summer	I+40%	7.315	6.697	0.027	0.000	0.01	9.974	0.0				0.4	SURCHARGED
S1.004	1	1440	minute	10	year	Summer	I+40%	7.240	6.697	0.038	0.000	0.04	22.859	0.2				1.7	SURCHARGED
S1.005	2	1440	minute	10	year	Summer	I+40%	7.125	6.697	0.083	0.000	0.00	21.640	0.0				0.0	SURCHARGED
S1.006	3	1440	minute	10	year	Summer	I+40%	6.925	6.395	-0.020	0.000	0.00	7.009	0.0		1000		0.0	OK
S1.007	4	1440	minute	10	year	Summer	I+40%	6.425	6.020	0.105	0.000	0.00	9.570	0.0		1073		0.0	SURCHARGED

Summary Wizard of 1440 minute 10 year Summer I+40% for 70 Units_Perm Paving_RevD

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Maximum Vol (m³)	Maximum Velocity (m/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.008	5	1440 minute 10 year Summer I+40%	6.000	5.528	0.039	0.000	0.00	10.097	0.0	942	0.0	SURCHARGED
S4.000	6	1440 minute 10 year Summer I+40%	5.985	5.209	-0.266	0.000	0.00	0.008	0.0		0.0	OK
S4.001	7	1440 minute 10 year Summer I+40%	5.910	5.209	-0.191	0.000	0.00	5.949	0.0	418	0.0	OK
S5.000	8	1440 minute 10 year Summer I+40%	6.750	5.940	-0.300	0.000	0.00	0.000	0.0		0.0	OK
S5.001	9	1440 minute 10 year Summer I+40%	6.210	5.750	0.050	0.000	0.00	15.993	0.0	961	0.0	SURCHARGED
S6.000	10	1440 minute 10 year Summer I+40%	7.225	6.525	-0.190	0.000	0.00	0.030	0.0		0.0	OK
S6.001	11	1440 minute 10 year Summer I+40%	7.110	6.526	-0.074	0.000	0.01	7.110	0.0		0.2	OK
S7.000	12	1440 minute 10 year Summer I+40%	7.235	6.531	-0.235	0.000	0.00	0.017	0.0		0.0	OK
S7.001	13	1440 minute 10 year Summer I+40%	7.160	6.531	-0.189	0.000	0.01	3.127	0.1	928	0.4	OK
S7.002	14	1440 minute 10 year Summer I+40%	7.160	6.531	0.031	0.000	0.38	27.737	0.2	1301	2.0	SURCHARGED
S7.003	15	1440 minute 10 year Summer I+40%	7.135	6.526	0.063	0.000	0.46	1.132	0.1		1.9	SURCHARGED
S6.002	16	1440 minute 10 year Summer I+40%	7.110	6.526	-0.074	0.000	0.05	7.208	0.1		1.1	OK
S6.003	17	1440 minute 10 year Summer I+40%	7.120	6.526	-0.074	0.000	0.03	6.597	0.1		0.8	OK
S6.004	18	1440 minute 10 year Summer I+40%	7.125	6.526	-0.074	0.000	0.00	14.060	0.0		0.0	OK
S8.000	19	1440 minute 10 year Summer I+40%	7.240	6.644	-0.086	0.000	0.00	0.059	0.0		0.0	OK
S8.001	20	1440 minute 10 year Summer I+40%	7.040	6.644	0.114	0.000	0.00	12.301	0.0	1329	0.0	SURCHARGED
S8.002	21	1440 minute 10 year Summer I+40%	6.810	6.197	-0.103	0.000	0.00	6.273	0.0	659	0.0	OK
S9.000	22	1440 minute 10 year Summer I+40%	6.130	5.358	-0.262	0.000	0.00	0.009	0.0		0.0	OK
S9.001	23	1440 minute 10 year Summer I+40%	6.000	5.358	-0.132	0.000	0.00	7.582	0.0	596	0.0	OK
S10.000	24	1440 minute 10 year Summer I+40%	7.110	6.300	-0.300	0.000	0.00	0.000	0.0		0.0	OK
S10.001	25	1440 minute 10 year Summer I+40%	6.720	6.297	0.087	0.000	0.00	2.598	0.0	1206	0.0	SURCHARGED

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Micro Drainage	Network 2020.1.3	

Summary Wizard of 1440 minute 10 year Winter I+40% for 70 Units_Perm Paving_RevD

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 Coefficient 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 12 Number of Storage Structures 21 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) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
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) 10, 100
Climate Change (%) 40, 40

				Water Surcharged Flooded				Maximum Half Drain Pipe				Status
PN	US/MH Name	Event	US/CL (m)	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Maximum Vol (m³)	Velocity (m/s)	Time (mins)	Flow (l/s)	
S1.000	31	1440 minute 10 year Winter I+40%	7.250	6.716	-0.137	0.000	0.00	0.179	0.0		0.0	OK
S1.001	26	1440 minute 10 year Winter I+40%	7.280	6.717	-0.098	0.000	0.04	17.654	0.2		1.9	OK
S1.002	27	1440 minute 10 year Winter I+40%	7.280	6.717	-0.038	0.000	0.11	10.396	0.2		5.6	OK
S2.000	28	1440 minute 10 year Winter I+40%	7.300	6.717	-0.101	0.000	0.00	0.219	0.0		0.1	OK
S2.001	29	1440 minute 10 year Winter I+40%	7.300	6.717	-0.038	0.000	0.12	10.503	0.1		5.8	OK
S1.003	30	1440 minute 10 year Winter I+40%	7.240	6.776	0.021	0.000	0.09	0.739	0.3		4.5	SURCHARGED
S3.000	32	1440 minute 10 year Winter I+40%	7.315	6.720	0.050	0.000	0.01	10.708	0.0		0.4	SURCHARGED
S1.004	1	1440 minute 10 year Winter I+40%	7.240	6.720	0.061	0.000	0.04	24.490	0.2		1.7	SURCHARGED
S1.005	2	1440 minute 10 year Winter I+40%	7.125	6.720	0.106	0.000	0.00	22.964	0.0		0.0	SURCHARGED
S1.006	3	1440 minute 10 year Winter I+40%	6.925	6.421	0.006	0.000	0.00	8.029	0.0	1053	0.0	SURCHARGED
S1.007	4	1440 minute 10 year Winter I+40%	6.425	6.046	0.132	0.000	0.00	10.841	0.0	1071	0.0	SURCHARGED

Summary Wizard of 1440 minute 10 year Winter I+40% for 70 Units_Perm Paving_RevD

PN	US/MH Name	Event	US/CL (m)	Water	Surcharged	Flooded	Flow / Cap.	Maximum Vol (m³)	Maximum Velocity (m/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
				Level (m)	Depth (m)	Volume (m³)						
S1.008	5	1440 minute 10 year Winter I+40%	6.000	5.550	0.060	0.000	0.00	11.374	0.0	936	0.0	SURCHARGED
S4.000	6	1440 minute 10 year Winter I+40%	5.985	5.212	-0.263	0.000	0.00	0.009	0.0		0.0	OK
S4.001	7	1440 minute 10 year Winter I+40%	5.910	5.212	-0.188	0.000	0.00	6.231	0.0	450	0.0	OK
S5.000	8	1440 minute 10 year Winter I+40%	6.750	5.940	-0.300	0.000	0.00	0.000	0.0		0.0	OK
S5.001	9	1440 minute 10 year Winter I+40%	6.210	5.772	0.072	0.000	0.00	18.065	0.0	954	0.0	SURCHARGED
S6.000	10	1440 minute 10 year Winter I+40%	7.225	6.551	-0.164	0.000	0.00	0.037	0.0		0.0	OK
S6.001	11	1440 minute 10 year Winter I+40%	7.110	6.551	-0.049	0.000	0.01	8.225	0.0		0.1	OK
S7.000	12	1440 minute 10 year Winter I+40%	7.235	6.557	-0.209	0.000	0.00	0.024	0.0		0.0	OK
S7.001	13	1440 minute 10 year Winter I+40%	7.160	6.557	-0.163	0.000	0.01	4.086	0.1	1181	0.4	OK
S7.002	14	1440 minute 10 year Winter I+40%	7.160	6.557	0.057	0.000	0.34	33.597	0.2		1.8	SURCHARGED
S7.003	15	1440 minute 10 year Winter I+40%	7.135	6.552	0.089	0.000	0.40	1.161	0.1		1.7	SURCHARGED
S6.002	16	1440 minute 10 year Winter I+40%	7.110	6.551	-0.049	0.000	0.05	8.016	0.1		0.9	OK
S6.003	17	1440 minute 10 year Winter I+40%	7.120	6.551	-0.049	0.000	0.03	7.369	0.1		0.7	OK
S6.004	18	1440 minute 10 year Winter I+40%	7.125	6.551	-0.049	0.000	0.00	15.707	0.0		0.0	OK
S8.000	19	1440 minute 10 year Winter I+40%	7.240	6.698	-0.032	0.000	0.00	0.074	0.0		0.0	OK
S8.001	20	1440 minute 10 year Winter I+40%	7.040	6.698	0.168	0.000	0.00	14.283	0.0	1347	0.0	SURCHARGED
S8.002	21	1440 minute 10 year Winter I+40%	6.810	6.207	-0.093	0.000	0.00	6.868	0.0	644	0.0	OK
S9.000	22	1440 minute 10 year Winter I+40%	6.130	5.369	-0.251	0.000	0.00	0.012	0.0		0.0	OK
S9.001	23	1440 minute 10 year Winter I+40%	6.000	5.369	-0.121	0.000	0.00	8.340	0.0	594	0.0	OK
S10.000	24	1440 minute 10 year Winter I+40%	7.110	6.324	-0.276	0.000	0.00	0.021	0.0		0.0	OK
S10.001	25	1440 minute 10 year Winter I+40%	6.720	6.324	0.114	0.000	0.00	2.946	0.0	1233	0.0	SURCHARGED

Odyssey		Page 23
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving_revD	
Date 12/07/2021 10:42 File 19-156 70 Units Perm Paving Strategy.MDX	Designed by AK Checked by	
Micro Drainage	Network 2020.1.3	

10 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 70 Units_Perm Paving_RevD

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 12 Number of Storage Structures 21 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) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
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) 10, 100
Climate Change (%) 40, 40

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

										Water	Surcharged	Flooded			Maximum	Half Drain	Pipe
US/MH								US/CL	Level	Depth	Volume	Flow /	Maximum	Velocity	Time	Flow	
PN	Name	Event						(m)	(m)	(m)	(m³)	Cap.	Vol (m³)	(m/s)	(mins)	(l/s)	Status
S1.000	31	8640 minute	10 year	Winter	I+40%	7.250	6.859		0.006	0.000	0.00	0.340	0.0			0.1	SURCHARGED
S1.001	26	8640 minute	10 year	Winter	I+40%	7.280	6.859		0.044	0.000	0.06	31.325	0.1	6353		2.6	SURCHARGED
S1.002	27	8640 minute	10 year	Winter	I+40%	7.280	6.862		0.107	0.000	0.14	16.342	0.1	7837		7.1	SURCHARGED
S2.000	28	8640 minute	10 year	Winter	I+40%	7.300	6.864		0.046	0.000	0.00	0.386	0.0			0.1	SURCHARGED
S2.001	29	8640 minute	10 year	Winter	I+40%	7.300	6.864		0.109	0.000	0.15	16.734	0.2	7772		7.3	SURCHARGED
S1.003	30	10080 minute	10 year	Winter	I+40%	7.240	6.967		0.213	0.000	0.10	0.975	0.1			4.8	SURCHARGED
S3.000	32	8640 minute	10 year	Winter	I+40%	7.315	6.858		0.188	0.000	0.05	15.193	0.0			2.0	SURCHARGED
S1.004	1	8640 minute	10 year	Winter	I+40%	7.240	6.858		0.199	0.000	0.04	33.982	0.1			1.7	SURCHARGED

10 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 70 Units_Perm Paving_RevD

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Maximum Vol (m³)	Maximum Velocity (m/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.005	2	8640 minute 10 year Winter I+40%	7.125	6.858	0.244	0.000	0.00	30.919	0.0		0.0	SURCHARGED
S1.006	3	600 minute 10 year Winter I+40%	6.925	6.435	0.020	0.000	0.00	8.561	0.0		0.0	SURCHARGED
S1.007	4	600 minute 10 year Winter I+40%	6.425	6.057	0.142	0.000	0.00	11.340	0.0		0.0	SURCHARGED
S1.008	5	600 minute 10 year Winter I+40%	6.000	5.561	0.071	0.000	0.00	12.086	0.0		0.0	SURCHARGED
S4.000	6	360 minute 10 year Winter I+40%	5.985	5.238	-0.237	0.000	0.00	0.017	0.0		0.0	OK
S4.001	7	360 minute 10 year Winter I+40%	5.910	5.238	-0.162	0.000	0.00	8.562	0.0	338	0.0	OK
S5.000	8	15 minute 10 year Summer I+40%	6.750	5.940	-0.300	0.000	0.00	0.000	0.0		0.0	OK
S5.001	9	600 minute 10 year Winter I+40%	6.210	5.782	0.082	0.000	0.00	19.018	0.0		0.0	SURCHARGED
S6.000	10	4320 minute 10 year Winter I+40%	7.225	6.572	-0.143	0.000	0.00	0.043	0.0		0.0	OK
S6.001	11	4320 minute 10 year Winter I+40%	7.110	6.572	-0.028	0.000	0.39	9.129	0.2	1729	8.1	OK
S7.000	12	1440 minute 10 year Winter I+40%	7.235	6.557	-0.209	0.000	0.00	0.024	0.0		0.0	OK
S7.001	13	1440 minute 10 year Winter I+40%	7.160	6.557	-0.163	0.000	0.01	4.086	0.1	1181	0.4	OK
S7.002	14	1440 minute 10 year Winter I+40%	7.160	6.557	0.057	0.000	0.34	33.597	0.2		1.8	SURCHARGED
S7.003	15	4320 minute 10 year Winter I+40%	7.135	6.573	0.110	0.000	0.33	1.185	0.1		1.4	SURCHARGED
S6.002	16	4320 minute 10 year Winter I+40%	7.110	6.589	-0.011	0.000	0.82	9.203	0.3	1979	16.9	OK
S6.003	17	4320 minute 10 year Winter I+40%	7.120	6.633	0.033	0.000	5.41	9.717	4.6	1712	138.4	SURCHARGED
S6.004	18	4320 minute 10 year Winter I+40%	7.125	6.753	0.153	0.000	0.00	27.510	0.0	635	0.0	SURCHARGED
S8.000	19	960 minute 10 year Winter I+40%	7.240	6.708	-0.022	0.000	0.00	0.077	0.0		0.0	OK
S8.001	20	960 minute 10 year Winter I+40%	7.040	6.708	0.178	0.000	0.00	14.636	0.0		0.0	SURCHARGED
S8.002	21	360 minute 10 year Winter I+40%	6.810	6.220	-0.080	0.000	0.00	7.834	0.0		0.0	OK
S9.000	22	360 minute 10 year Winter I+40%	6.130	5.393	-0.227	0.000	0.00	0.019	0.0		0.0	OK
S9.001	23	360 minute 10 year Winter I+40%	6.000	5.393	-0.097	0.000	0.00	10.135	0.0		0.0	OK
S10.000	24	720 minute 10 year Winter I+40%	7.110	6.331	-0.269	0.000	0.00	0.030	0.0		0.0	OK
S10.001	25	720 minute 10 year Winter I+40%	6.720	6.331	0.121	0.000	0.00	3.044	0.0		0.0	SURCHARGED

Odyssey		Page 25
Tuscany House White Hart Lane Basingstoke RG21 4AF	Stakers Farm, Yapton 70 Units Permeable Paving_revD	
Date 12/07/2021 10:42 File 19-156 70 Units Perm Paving Strategy.MDX	Designed by AK Checked by	
Micro Drainage	Network 2020.1.3	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 70 Units_Perm Paving_RevD

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 12 Number of Storage Structures 21 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) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
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) 10, 100
Climate Change (%) 40, 40

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

										Water	Surcharged	Flooded			Maximum	Half Drain	Pipe
PN	US/MH							US/CL	Level	Depth	Volume	Flow /	Maximum	Velocity	Time	Flow	
	Name	Event					(m)	(m)	(m)	(m³)	Cap.	Vol (m³)	(m/s)	(mins)	(l/s)	Status	
S1.000	31	7200	minute	100	year	Winter	I+40%	7.250	6.926	0.073	0.000	0.00	0.416	0.0		0.0	SURCHARGED
S1.001	26	7200	minute	100	year	Winter	I+40%	7.280	6.926	0.111	0.000	0.04	37.585	0.1		1.8	SURCHARGED
S1.002	27	7200	minute	100	year	Winter	I+40%	7.280	6.937	0.182	0.000	0.11	19.187	0.1		5.5	SURCHARGED
S2.000	28	7200	minute	100	year	Winter	I+40%	7.300	6.938	0.120	0.000	0.00	0.470	0.0		0.2	SURCHARGED
S2.001	29	7200	minute	100	year	Winter	I+40%	7.300	6.940	0.185	0.000	0.16	19.736	0.2		7.6	SURCHARGED
S1.003	30	8640	minute	100	year	Winter	I+40%	7.240	7.035	0.281	0.000	0.09	1.052	0.1		4.5	SURCHARGED
S3.000	32	7200	minute	100	year	Winter	I+40%	7.315	6.921	0.251	0.000	0.06	17.245	0.0		2.3	SURCHARGED
S1.004	1	7200	minute	100	year	Winter	I+40%	7.240	6.921	0.262	0.000	0.06	38.255	0.1		2.8	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 70 Units_Perm Paving_RevD

										Water	Surcharged	Flooded			Maximum	Half Drain	Pipe	
US/MH								US/CL	Level	Depth	Volume	Flow /	Maximum	Velocity		Time	Flow	
PN	Name	Event						(m)	(m)	(m)	(m³)	Cap.	Vol (m³)	(m/s)		(mins)	(l/s)	Status
S1.005	2	7200 minute	100 year	Winter	I+40%	7.125	6.920	0.306	0.000	0.01	34.483	0.0					1.0	SURCHARGED
S1.006	3	8640 minute	100 year	Winter	I+40%	6.925	6.719	0.305	0.000	0.01	18.494	0.5		3965			0.9	SURCHARGED
S1.007	4	8640 minute	100 year	Winter	I+40%	6.425	6.217	0.302	0.000	0.01	20.002	0.4		2350			0.7	SURCHARGED
S1.008	5	10080 minute	100 year	Winter	I+40%	6.000	5.670	0.181	0.000	0.00	19.766	0.0		1202			0.0	SURCHARGED
S4.000	6	360 minute	100 year	Winter	I+40%	5.985	5.310	-0.165	0.000	0.00	0.037	0.0					0.0	OK
S4.001	7	360 minute	100 year	Winter	I+40%	5.910	5.310	-0.090	0.000	0.00	14.883	0.0					0.0	OK
S5.000	8	15 minute	100 year	Summer	I+40%	6.750	5.940	-0.300	0.000	0.00	0.000	0.0					0.0	OK
S5.001	9	600 minute	100 year	Winter	I+40%	6.210	5.888	0.188	0.000	0.00	30.753	0.0					0.0	SURCHARGED
S6.000	10	2160 minute	100 year	Winter	I+40%	7.225	6.666	-0.049	0.000	0.00	0.070	0.0					0.0	OK
S6.001	11	2160 minute	100 year	Winter	I+40%	7.110	6.667	0.067	0.000	0.01	12.952	0.0					0.2	SURCHARGED
S7.000	12	2160 minute	100 year	Winter	I+40%	7.235	6.672	-0.094	0.000	0.00	0.057	0.0					0.0	OK
S7.001	13	2160 minute	100 year	Winter	I+40%	7.160	6.672	-0.048	0.000	0.01	8.350	0.1					0.3	OK
S7.002	14	2160 minute	100 year	Winter	I+40%	7.160	6.672	0.172	0.000	0.33	59.577	0.2					1.7	SURCHARGED
S7.003	15	2160 minute	100 year	Winter	I+40%	7.135	6.667	0.204	0.000	0.39	1.292	0.1					1.7	SURCHARGED
S6.002	16	2160 minute	100 year	Winter	I+40%	7.110	6.667	0.067	0.000	0.05	11.424	0.1					0.9	SURCHARGED
S6.003	17	2160 minute	100 year	Winter	I+40%	7.120	6.667	0.067	0.000	0.03	10.616	0.0					0.7	SURCHARGED
S6.004	18	2160 minute	100 year	Winter	I+40%	7.125	6.667	0.067	0.000	0.00	22.640	0.0					0.0	SURCHARGED
S8.000	19	480 minute	100 year	Winter	I+40%	7.240	6.832	0.102	0.000	0.00	0.112	0.0					0.0	SURCHARGED
S8.001	20	480 minute	100 year	Winter	I+40%	7.040	6.832	0.302	0.000	0.01	19.143	0.1					0.8	SURCHARGED
S8.002	21	720 minute	100 year	Winter	I+40%	6.810	6.361	0.061	0.000	0.00	17.791	0.0					0.0	SURCHARGED
S9.000	22	480 minute	100 year	Winter	I+40%	6.130	5.485	-0.135	0.000	0.00	0.045	0.0					0.0	OK
S9.001	23	480 minute	100 year	Winter	I+40%	6.000	5.485	-0.005	0.000	0.00	17.186	0.0					0.0	OK
S10.000	24	960 minute	100 year	Winter	I+40%	7.110	6.473	-0.127	0.000	0.00	0.190	0.0					0.0	OK
S10.001	25	960 minute	100 year	Winter	I+40%	6.720	6.473	0.263	0.000	0.00	4.831	0.0					0.0	SURCHARGED