FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH6	FEH: 100 years: +40 %: 15 mins: Winter	9.810	8.200	8.226	0.026	3.0	0.000	0.000	3.0	2.123	OK
MH5	FEH: 100 years: +40 %: 240 mins: Summer	9.860	8.240	8.745	0.505	3.5	0.892	0.000	3.0	65.897	Surcharged
MH1	FEH: 100 years: +40 %: 1440 mins: Summer	10.521	8.800	9.735	0.935	6.9	1.652	0.000	0.0	194.645	Surcharged
MH2	FEH: 100 years: +40 %: 30 mins: Summer	11.076	8.700	9.161	0.461	76.8	0.814	0.000	76.9	62.299	Surcharged
MH3	FEH: 100 years: +40 %: 480 mins: Summer	12.487	8.600	9.261	0.661	14.3	1.169	0.000	14.3	120.050	Surcharged
MH4	FEH: 100 years: +40 %: 360 mins: Summer	11.298	8.400	9.259	0.859	13.1	1.517	0.000	13.1	97.199	Surcharged

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Block 3 Tank	FEH: 2 years: +0 %: 480 mins: Summer	8.694	8.694	0.244	0.244	22.2	118.041	0.000	0.000	6.6	59.187	59.472	OK
Block 4 Tank	FEH: 2 years: +0 %: 1440 mins: Summer	9.413	9.413	0.513	0.513	4.5	269.245	0.000	0.000	0.9	6.971	48.822	OK
Block 3 RG	FEH: 2 years: +0 %: 15 mins: Summer	9.849	9.015	1.001	0.244	27.1	13.921	0.000	0.000	1.5	1.500	89.172	OK
Block 2 RG.1	FEH: 2 years: +0 %: 15 mins: Summer	8.431	8.350	0.000	0.000	0.0	3.968	0.000	0.000	0.0	0.000	96.161	OK
Block 2 RG	FEH: 2 years: +0 %: 30 mins: Summer	9.419	8.693	0.901	0.393	49.7	54.293	0.000	0.000	0.0	0.000	84.114	OK
Highways RG (1)	FEH: 2 years: +0 %: 1440 mins: Summer	8.985	8.985	0.387	0.422	2.1	14.353	0.000	0.000	0.0	0.000	80.102	OK
Block 10 RG	FEH: 2 years: +0 %: 15 mins: Summer	10.199	9.132	1.002	0.069	62.0	45.888	0.000	0.000	11.6	6.438	92.582	OK
Highways RG	FEH: 2 years: +0 %: 15 mins: Summer	9.229	9.123	0.000	0.000	0.0	4.242	0.000	0.000	0.0	0.000	97.433	OK
Block 1 RG	FEH: 2 years: +0 %: 15 mins: Summer	9.431	8.641	0.801	0.141	28.8	18.565	0.000	0.000	4.9	3.297	92.446	OK
Bioretention (10)	FEH: 2 years: +0 %: 480 mins: Summer	9.257	8.407	0.800	0.046	0.4	9.588	0.000	0.000	0.0	0.000	93.863	OK
Block 4 RG	FEH: 2 years: +0 %: 120 mins: Summer	9.895	9.049	0.800	0.114	18.6	33.602	0.000	0.000	15.5	40.466	90.185	OK
Block 1 PP	FEH: 2 years: +0 %: 1440 mins: Summer	9.017	9.017	0.433	0.617	6.2	74.573	0.000	0.000	2.3	69.893	52.806	OK
Block 4 PP	FEH: 2 years: +0 %: 120 mins: Summer	9.939	9.527	0.053	0.020	4.2	6.392	0.000	0.000	3.2	7.972	97.293	OK
Site Pond	FEH: 2 years: +0 %: 1440 mins: Summer	8.984	8.984	0.234	0.234	5.2	78.423	0.000	0.000	2.7	30.846	81.842	OK
Highways RG (2)	FEH: 2 years: +0 %: 30 mins: Summer	9.017	8.247	0.500	0.002	25.6	70.031	0.000	0.000	0.0	0.000	94.401	OK
Block 2 PP	FEH: 2 years: +0 %: 1440 mins: Summer	8.692	8.692	0.047	0.292	6.3	59.294	0.000	0.000	4.1	61.022	87.643	OK
Block 2 Tank	FEH: 2 years: +0 %: 1440 mins: Summer	8.692	8.692	0.312	0.312	4.1	37.730	0.000	0.000	0.0	11.418	48.750	OK

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by: GJ	Checked by: CP	Approved By: CP
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Block 3 Tank	FEH: 30 years: +35 %: 1440 mins: Summer	9.084	9.084	0.634	0.634	20.7	290.229	0.000	0.000	16.6	303.801	0.352	OK
Block 4 Tank	FEH: 30 years: +35 %: 1440 mins: Summer	9.735	9.735	0.835	0.835	14.4	438.517	0.000	0.000	1.1	20.384	16.648	OK
Block 3 RG	FEH: 30 years: +35 %: 15 mins: Summer	9.849	9.149	1.002	0.378	97.5	22.311	0.000	0.000	55.2	32.303	82.647	OK
Block 2 RG.1	FEH: 30 years: +35 %: 15 mins: Summer	8.431	8.350	0.000	0.000	0.0	3.969	0.000	0.000	0.0	0.000	96.161	OK
Block 2 RG	FEH: 30 years: +35 %: 120 mins: Summer	10.447	9.048	1.928	0.748	115.5	161.230	0.000	0.000	50.4	152.441	52.826	OK
Highways RG (1)	FEH: 30 years: +35 %: 480 mins: Summer	9.597	9.562	1.000	1.000	5.6	22.962	0.000	0.000	0.1	0.371	68.168	OK
Block 10 RG	FEH: 30 years: +35 %: 15 mins: Summer	10.203	9.248	1.006	0.186	223.1	104.477	0.000	0.000	70.0	58.437	83.110	OK
Highways RG	FEH: 30 years: +35 %: 15 mins: Summer	9.229	9.123	0.000	0.000	0.0	4.242	0.000	0.000	0.0	0.000	97.433	OK
Block 1 RG	FEH: 30 years: +35 %: 15 mins: Summer	9.435	8.794	0.805	0.294	104.6	36.967	0.000	0.000	39.2	23.590	84.958	OK
Bioretention (10)	FEH: 30 years: +35 %: 60 mins: Summer	9.257	8.442	0.800	0.082	3.9	11.327	0.000	0.000	0.0	0.000	92.750	OK
Block 4 RG	FEH: 30 years: +35 %: 1440 mins: Summer	9.895	10.073	0.800	1.138	8.8	125.872	0.000	0.000	5.6	264.127	63.233	OK
Block 1 PP	FEH: 30 years: +35 %: 960 mins: Summer	9.018	9.018	0.434	0.618	6.2	74.652	0.000	0.000	3.5	130.924	52.756	OK
Block 4 PP	FEH: 30 years: +35 %: 30 mins: Summer	10.007	9.551	0.121	0.044	20.7	13.953	0.000	0.000	15.5	15.000	94.090	OK
Site Pond	FEH: 30 years: +35 %: 960 mins: Summer	9.258	9.258	0.508	0.508	19.3	191.640	0.000	0.000	2.9	71.163	55.627	OK
Highways RG (2)	FEH: 30 years: +35 %: 960 mins: Summer	9.017	9.864	0.500	1.619	45.9	560.766	0.000	0.000	3.1	272.699	55.163	OK
Block 2 PP	FEH: 30 years: +35 %: 1440 mins: Summer	9.084	9.084	0.439	0.684	18.8	196.670	0.000	0.000	10.3	180.023	59.014	OK
Block 2 Tank	FEH: 30 years: +35 %: 1440 mins: Summer	9.084	9.084	0.704	0.704	10.3	72.747	0.000	0.000	0.0	70.684	1.186	OK

FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Stormwater Controls Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Block 3 Tank	FEH: 100 years: +40 %: 1440 mins: Summer	9.565	9.565	1.115	1.115	26.9	290.711	0.000	0.000	14.0	313.887	0.186	OK
Block 4 Tank	FEH: 100 years: +40 %: 1440 mins: Summer	9.735	9.735	0.835	0.835	18.5	438.530	0.000	0.000	1.1	8.182	16.645	OK
Block 3 RG	FEH: 100 years: +40 %: 15 mins: Summer	9.849	9.149	1.002	0.378	130.8	26.348	0.000	0.000	84.1	46.748	79.507	OK
Block 2 RG.1	FEH: 100 years: +40 %: 30 mins: Summer	8.431	8.350	0.000	0.000	0.0	3.971	0.000	0.000	0.0	0.000	96.159	OK
Block 2 RG	FEH: 100 years: +40 %: 30 mins: Summer	10.562	9.052	2.043	0.752	245.6	197.656	0.000	0.000	53.4	110.132	42.168	Flood Risk
Highways RG (1)	FEH: 100 years: +40 %: 480 mins: Summer	9.597	9.562	1.000	1.000	6.1	23.255	0.000	0.000	0.4	2.498	67.761	OK
Block 10 RG	FEH: 100 years: +40 %: 15 mins: Summer	10.281	9.272	1.083	0.210	299.3	131.930	0.000	0.000	84.9	76.455	78.672	OK
Highways RG	FEH: 100 years: +40 %: 15 mins: Summer	9.229	9.123	0.000	0.000	0.0	4.242	0.000	0.000	0.0	0.000	97.433	OK
Block 1 RG	FEH: 100 years: +40 %: 15 mins: Summer	9.436	8.835	0.806	0.335	120.4	45.746	0.000	0.000	50.7	30.527	81.385	OK
Bioretention (10)	FEH: 100 years: +40 %: 480 mins: Summer	9.257	9.021	0.800	0.661	15.0	53.776	0.000	0.000	9.6	37.699	65.579	OK
Block 4 RG	FEH: 100 years: +40 %: 1440 mins: Summer	9.895	11.062	0.800	2.128	11.5	251.368	0.000	0.000	6.9	197.839	26.576	Flood Risk
Block 1 PP	FEH: 100 years: +40 %: 360 mins: Summer	9.030	9.019	0.445	0.619	18.2	75.573	0.000	0.000	15.3	85.906	52.173	OK
Block 4 PP	FEH: 100 years: +40 %: 15 mins: Summer	10.040	9.555	0.155	0.048	43.3	16.919	0.000	0.000	19.1	12.929	92.834	OK
Site Pond	FEH: 100 years: +40 %: 480 mins: Summer	9.263	9.263	0.513	0.513	43.6	193.947	0.000	0.000	14.3	126.042	55.092	OK
Highways RG (2)	FEH: 100 years: +40 %: 1440 mins: Summer	9.017	9.986	0.500	1.741	44.7	895.676	0.000	0.000	3.1	423.628	28.385	Flood Risk
Block 2 PP	FEH: 100 years: +40 %: 1440 mins: Summer	9.565	9.565	0.920	1.165	17.8	365.380	0.000	0.000	5.3	84.499	23.855	OK
Block 2 Tank	FEH: 100 years: +40 %: 1440 mins: Summer	9.565	9.565	1.185	1.185	5.3	73.228	0.000	0.000	0.0	0.229	0.532	OK

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Connections Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW1.000	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 4 RG	MH1	11.326	9.735	0.181	40.466	0.4	0.08	15.5	Surcharged
SW1.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	Block 3 RG	10.521	8.984	0.092	0.001	0.0	0	0.0	OK
SW1.002	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 3 RG	MH2	11.078	9.771	0.287	16.227	0.4	0.06	13.1	Surcharged
SW1.003	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	MH2	Highways RG (2)	11.076	9.922	0.161	0.000	0.3	0.07	13.1	OK
SW1.004	FEH: 2 years: +0 %: 960 mins: Summer	Pipe	Highways RG (2)	MH5	9.908	8.745	0.263	179.511	0.3	0.02	3.0	Surcharged
SW1.005	FEH: 2 years: +0 %: 960 mins: Summer	Pipe	MH5	MH6	9.860	8.505	0.027	179.445	0.8	0.01	3.0	OK
SW3.001	FEH: 2 years: +0 %: 1440 mins: Summer	Pipe	Block 1 PP	Highways RG (2)	9.993	8.925	0.309	0.000	0.0	0.01	2.3	Surcharged
SW3.000	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 1 RG	Block 1 PP	10.013	9.300	0.150	2.186	0.2	0.03	8.3	Surcharged
SW4.003	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Block 2 RG.1	Highways RG (2)	9.641	8.350	0.000	0.000	0.0	0	0.0	OK
SW5.000	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	Block 2 RG	Highways RG (2)	10.000	9.200	0.360	0.000	0.1	0.05	9.2	Surcharged
SW4.000	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	Block 3 Tank	Block 2 PP	9.782	8.694	0.146	11.274	0.2	0.05	6.6	OK
SW6.001	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 10 RG	Site Pond	13.104	10.062	0.096	52.473	1.0	0.14	22.9	Surcharged
SW6.003	FEH: 2 years: +0 %: 240 mins: Summer	Pipe	MH3	MH4	12.487	8.898	0.375	22.333	0.4	0.09	13.2	OK
SW6.004	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	Bioretention (10)	11.298	8.400	0.000	0.000	0.0	0	0.0	OK
SW7.000	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Highways RG (1)	MH4	11.364	8.830	0.367	0.000	0.0	0	0.3	OK
SW6.005	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Bioretention (10)	Highways RG (2)	10.423	8.361	0.000	0.000	0.0	0	0.0	OK
SW2.000	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 4 PP	Block 4 Tank	11.737	9.548	0.076	7.972	0.4	0.01	3.2	OK
SW2.001	FEH: 2 years: +0 %: 120 mins: Summer	Pipe	Block 4 Tank	MH1	10.154	9.049	0.199	0.834	0.2	0.01	1.7	OK
SW6.002	FEH: 2 years: +0 %: 240 mins: Summer	Pipe	Site Pond	MH3	12.974	8.898	0.223	25.157	0.9	0.07	15.3	OK
SW6.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Highways RG	Block 10 RG	11.486	9.123	0.000	0.000	0.0	0	0.0	OK
SW4.001	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	Block 2 PP	Block 2 Tank	18.750	8.532	0.265	33.297	0.7	0.05	6.4	OK

SW4.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Block 2 Tank	Block 2 RG.1	17.557	8.380	0.000	0.000	0.0	0	0.0	OK

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Connections Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW1.000	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Block 4 RG	MH1	11.326	9.735	0.292	59.626	0.7	0.29	58.9	Surcharged
SW1.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH1	Block 3 RG	10.521	9.135	0.167	0.006	0.0	0	0.0	OK
SW1.002	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Block 3 RG	MH2	11.078	9.771	0.375	43.983	0.7	0.24	55.7	Surcharged
SW1.003	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH2	Highways RG (2)	11.076	9.140	0.220	0.000	0.8	0.32	55.8	Surcharged
SW1.004	FEH: 30 years: +35 %: 60 mins: Summer	Pipe	Highways RG (2)	MH5	9.908	8.775	0.375	15.162	0.1	0.04	4.4	Surcharged
SW1.005	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH5	MH6	9.860	8.538	0.028	1.932	0.8	0.01	3.0	OK
SW3.001	FEH: 30 years: +35 %: 1440 mins: Summer	Pipe	Block 1 PP	Highways RG (2)	9.993	8.926	0.309	0.000	0.0	0.02	4.3	Surcharged
SW3.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 1 RG	Block 1 PP	10.013	9.301	0.239	3.351	0.5	0.14	39.2	Surcharged
SW4.003	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 2 RG.1	Highways RG (2)	9.641	8.350	0.000	0.001	0.0	0	0.0	OK
SW5.000	FEH: 30 years: +35 %: 120 mins: Summer	Pipe	Block 2 RG	Highways RG (2)	10.000	10.206	0.374	0.000	0.5	0.27	50.4	Surcharged
SW4.000	FEH: 30 years: +35 %: 120 mins: Summer	Pipe	Block 3 Tank	Block 2 PP	9.782	8.859	0.291	12.216	0.7	0.49	60.9	Surcharged
SW6.001	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Block 10 RG	Site Pond	13.104	10.063	0.184	105.663	1.4	0.45	74.4	Surcharged
SW6.003	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH3	MH4	12.487	8.976	0.375	27.034	0.8	0.32	44.8	Surcharged
SW6.004	FEH: 30 years: +35 %: 960 mins: Summer	Pipe	MH4	Bioretention (10)	11.298	9.257	0.375	0.000	0.0	0.03	2.8	Surcharged
SW7.000	FEH: 30 years: +35 %: 480 mins: Summer	Pipe	Highways RG (1)	MH4	11.364	9.562	0.375	0.000	0.0	0	0.1	Surcharged
SW6.005	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Bioretention (10)	Highways RG (2)	10.423	9.161	0.000	0.001	0.0	0	0.0	Surcharged
SW2.000	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Block 4 PP	Block 4 Tank	11.737	9.597	0.137	15.000	0.7	0.03	15.5	OK
SW2.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 4 Tank	MH1	10.154	9.091	0.242	0.515	0.5	0.03	6.3	OK
SW6.002	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Site Pond	MH3	12.974	8.976	0.301	30.323	1.0	0.23	50.6	OK
SW6.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Highways RG	Block 10 RG	11.486	9.123	0.000	0.000	0.0	0	0.0	OK
SW4.001	FEH: 30 years: +35 %: 120 mins: Summer	Pipe	Block 2 PP	Block 2 Tank	18.750	8.718	0.375	55.779	1.9	0.43	54.3	OK

SW4.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 2 Tank	Block 2 RG.1	17.557	8.478	0.049	0.000	0.0	0	0.0	OK

Project:	Date:		
Project Otter Beehive Centre Cambridge	26/06/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Connections Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW1.000	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Block 4 RG	MH1	11.326	9.735	0.375	75.014	0.7	0.34	68.4	Surcharged
SW1.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH1	Block 3 RG	10.521	9.169	0.184	0.008	0.0	0	0.0	OK
SW1.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 3 RG	MH2	11.078	9.772	0.375	46.495	0.8	0.36	84.1	Surcharged
SW1.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH2	Highways RG (2)	11.076	9.138	0.219	0.000	1.4	0.48	84.9	Surcharged
SW1.004	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Highways RG (2)	MH5	9.908	8.813	0.375	7.486	0.1	0.04	5.0	Surcharged
SW1.005	FEH: 100 years: +40 %: 120 mins: Summer	Pipe	MH5	MH6	9.860	8.745	0.028	31.298	0.8	0.01	3.0	Surcharged
SW3.001	FEH: 100 years: +40 %: 360 mins: Summer	Pipe	Block 1 PP	Highways RG (2)	9.993	8.932	0.309	0.000	0.2	0.08	15.3	Surcharged
SW3.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 1 RG	Block 1 PP	10.013	9.301	0.280	4.521	0.6	0.18	50.7	Surcharged
SW4.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 2 RG.1	Highways RG (2)	9.641	8.350	0.000	0.002	0.0	0	0.0	OK
SW5.000	FEH: 100 years: +40 %: 120 mins: Summer	Pipe	Block 2 RG	Highways RG (2)	10.000	10.224	0.375	0.000	0.5	0.31	58.6	Flood Risk
SW4.000	FEH: 100 years: +40 %: 120 mins: Summer	Pipe	Block 3 Tank	Block 2 PP	9.782	8.959	0.375	12.543	0.9	0.77	95.6	Surcharged
SW6.001	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Block 10 RG	Site Pond	13.104	10.065	0.206	145.788	1.4	0.54	89.4	Surcharged
SW6.003	FEH: 100 years: +40 %: 60 mins: Winter	Pipe	MH3	MH4	12.487	9.098	0.375	34.252	0.7	0.31	44.4	Surcharged
SW6.004	FEH: 100 years: +40 %: 480 mins: Summer	Pipe	MH4	Bioretention (10)	11.298	9.258	0.375	0.000	0.1	0.13	14.6	Surcharged
SW7.000	FEH: 100 years: +40 %: 960 mins: Summer	Pipe	Highways RG (1)	MH4	11.364	9.562	0.375	0.000	0.0	0	0.7	Surcharged
SW6.005	FEH: 100 years: +40 %: 480 mins: Summer	Pipe	Bioretention (10)	Highways RG (2)	10.423	9.161	0.330	0.001	0.1	0.04	9.6	Surcharged
SW2.000	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Block 4 PP	Block 4 Tank	11.737	9.612	0.181	21.171	0.7	0.05	24.0	OK
SW2.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 4 Tank	MH1	10.154	9.159	0.310	0.968	0.6	0.06	11.5	OK
SW6.002	FEH: 100 years: +40 %: 60 mins: Winter	Pipe	Site Pond	MH3	12.974	9.098	0.375	37.921	1.0	0.23	50.4	OK
SW6.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Highways RG	Block 10 RG	11.486	9.123	0.000	0.000	0.0	0	0.0	OK
SW4.001	FEH: 100 years: +40 %: 120 mins: Summer	Pipe	Block 2 PP	Block 2 Tank	18.750	8.838	0.375	70.292	2.0	0.63	80.3	Surcharged

SW4.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 2 Tank	Block 2 RG.1	17.557	8.621	0.120	0.000	0.0	0	0.0	OK

Proposed Development Runoff Calculations

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH

Type: FEH

Site Location	GB 546583 258531 TL 46583 58531
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date:		
Project Otter (Southern Catchment Model) Beehive Centre Cambridge	08/07/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Block 5 & 6 Service Road	Block 5 Tank		Time of Concentration	0.220	100	0	100	0.220
Block 5 Public Realm	Block 5 and 6 Permeable Paving		Time of Concentration	0.039	100	0	100	0.039
Block 5 Public Realm (1)	Central Square Permeable Paving		Time of Concentration	0.034	100	0	100	0.034
Block 5 Roof	Block 5 Tank		Time of Concentration	0.523	100	0	100	0.523
Block 6 Public Realm	Park Rain Garden (1)		Time of Concentration	0.019	100	0	100	0.019
Block 6 Public Realm (1)	Park Rain Garden (1)		Time of Concentration	0.025	100	0	100	0.025
Block 6 Roof	Block 6 Tank		Time of Concentration	0.325	100	0	100	0.325
Block 7 Public Realm	Park Rain Garden		Time of Concentration	0.055	100	0	100	0.055
Block 7 Public Realm (1)	Block 8 Rain Garden		Time of Concentration	0.022	100	0	100	0.022
Block 7 Roof	Park Rain Garden		Time of Concentration	0.410	100	0	100	0.410
Block 8 Public Realm	Block 8 Permeable Paving		Time of Concentration	0.083	100	0	100	0.083
Block 8 Roof	Block 8 Rain Garden		Time of Concentration	0.355	100	0	100	0.355
Block 9 Public Realm	Block 9 Permeable Paving		Time of Concentration	0.176	100	0	100	0.176
Block 9 Roof	Central Square Permeable Paving		Time of Concentration	0.213	100	0	100	0.213
Central Square	Central Square Permeable Paving		Time of Concentration	0.209	100	0	100	0.209
Southern Highway	Park Rain Garden (1)		Time of Concentration	0.151	100	0	100	0.151
Southern Highway (1)	Sitewide Tank		Time of Concentration	0.209	100	0	100	0.209
TOTAL		**0.0**		**3.067**				**3.067**

Project:	Date:		
Project Otter (Southern Catchment Model) Beehive Centre Cambridge	08/07/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details: Type: Junctions Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
MH-5	Manhole	546425.128	258530.673	13.915	4.215	9.700	Circular	1.800
MH-4	Manhole	546461.345	258543.565	12.169	2.277	9.892	Circular	1.800
MH-2	Manhole	546560.885	258542.172	12.772	2.655	10.117	Circular	1.800
MH-3	Manhole	546545.890	258574.116	12.718	2.719	9.999	Circular	1.800
MH-1	Manhole	546611.791	258493.964	11.664	1.433	10.231	Circular	1.800

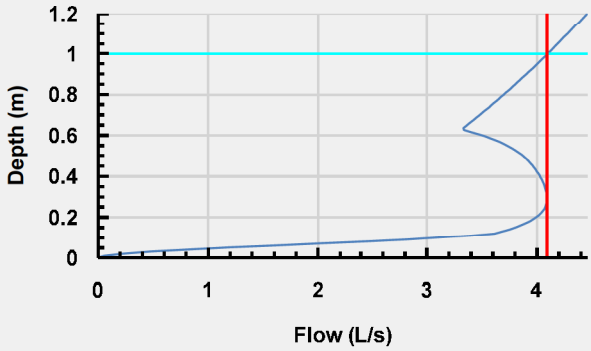
Name	Lock
MH-5	None
MH-4	None
MH-2	None
MH-3	None
MH-1	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
MH-5	Inlet	SW-1.008	(None)	No Restriction
MH-4	Inlet	SW-5.002 SW-1.007	(None)	No Restriction
MH-2	Inlet	SW-1.004	(None)	No Restriction
MH-3	Inlet	SW-1.005	(None)	No Restriction
MH-1	Inlet	SW-1.002	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
MH-4	Outlet	SW-1.008	Hydro-Brake®
	Invert Level (m)	9.892	
	Design Depth (m)	1.000	
	Design Flow (L/s)	4.1	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☑	
	Unit Reference	SHE-0096-4100-1000-4100	
MH-2	Outlet	SW-1.005	Free Discharge
MH-3	Outlet	SW-1.006	Free Discharge
MH-1	Outlet	SW-1.003	Free Discharge



Park Rain Garden

Type : Bioretention

Ponding Area

Exceedance Level (m)	11.600
Depth (m)	0.100
Base Level (m)	11.500
Top Area (m²)	2826.08
Side Slope (1:X)	0.00
Base Area (m²)	2826.08
Freeboard (mm)	0
Porosity (%)	100
Length (m)	87.908
Long. Slope (1:X)	1000.00
Filtration Rate (m/hr)	50.0
Friction Scheme	Manning's n
n	0.03
Total Volume (m³)	1615.216

Filter Area

Base Level (m)	10.100

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☑	Soil	1000	35	50.0	Soil Type
	Storage	400	30	500.0	

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 7 Public Realm
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 7 Roof
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	SW-5.000
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	SW-6.000
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Outlets

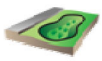
Outlet

Outgoing Connection	SW-5.001
Outlet Type	Under Drain

Advanced

Ponding Area

Base Perimeter (m)	240.113
Top Perimeter (m)	240.113



Block 5 Rain Garden

Type : Bioretention

Ponding Area

Exceedance Level (m)	11.952
Depth (m)	0.200
Base Level (m)	11.752
Top Area (m²)	364.23
Side Slope (1:X)	0.00
Base Area (m²)	364.23
Freeboard (mm)	100
Porosity (%)	100
Length (m)	48.482
Long. Slope (1:X)	300.00
Filtration Rate (m/hr)	50.0
Friction Scheme	Manning's n
n	0.03
Total Volume (m³)	224.214

Filter Area

Base Level (m)	10.252

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	375
No. of Barrels	2
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☑	Soil	900	35	50.0	Soil Type
	Storage	600	30	500.0	

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	SW-1.001
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-1.002
Outlet Type	Under Drain

Advanced

Ponding Area

Base Perimeter (m)	111.990
Top Perimeter (m)	111.990

Ponding Area

Exceedance Level (m)	12.300
Depth (m)	0.100
Base Level (m)	12.200
Top Area (m²)	934.68
Side Slope (1:X)	0.00
Base Area (m²)	934.68
Freeboard (mm)	100
Porosity (%)	100
Length (m)	128.916
Long. Slope (1:X)	1000.00
Filtration Rate (m/hr)	50.0
Friction Scheme	Manning's n
n	0.03
Total Volume (m³)	679.350

Filter Area

Base Level (m)	10.000

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☑	Soil	1200	35	50.0	Soil Type
	Storage	1000	30	500.0	

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 7 Public Realm (1)
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	SW-5.001
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	SW-7.000
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 8 Roof
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-5.002
Outlet Type	Under Drain

Advanced

Ponding Area

Base Perimeter (m)	272.333
Top Perimeter (m)	272.333

Highway Rain Garden (1)

Type : Bioretention

Ponding Area

Exceedance Level (m)	11.700
Depth (m)	0.200
Base Level (m)	11.500
Top Area (m²)	235.00
Side Slope (1:X)	0.00
Base Area (m²)	235.00
Freeboard (mm)	0
Porosity (%)	100
Length (m)	62.232
Long. Slope (1:X)	500.00
Filtration Rate (m/hr)	30.0
Friction Scheme	Manning's n
n	0.03
Total Volume (m³)	156.064

Filter Area

Base Level (m)	10.130

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☑	Soil	800	35	50.0	Soil Type
	Storage	570	30	500.0	

Inlets

Outlets

Outlet

Outgoing Connection	SW-6.000
Outlet Type	Under Drain

Advanced

Ponding Area

Base Perimeter (m)	132.016
Top Perimeter (m)	132.016

Park Rain Garden (1)

Type : Bioretention

Ponding Area

Exceedance Level (m)	11.590
Depth (m)	0.100
Base Level (m)	11.490
Top Area (m²)	1794.89
Side Slope (1:X)	0.00
Base Area (m²)	1794.89
Freeboard (mm)	0
Porosity (%)	100
Length (m)	129.487
Long. Slope (1:X)	500.00
Filtration Rate (m/hr)	50.0
Friction Scheme	Manning's n
n	0.03
Total Volume (m³)	1000.875

Filter Area

Base Level (m)	10.140

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☑	Soil	1000	35	50.0	Soil Type
	Storage	350	30	500.0	

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Southern Highway Block 6 Public Realm (1)
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 6 Public Realm
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-5.000
Outlet Type	Free Discharge

Advanced

Ponding Area

Base Perimeter (m)	286.697
Top Perimeter (m)	286.697

Central Square Permeable Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	11.611
Depth (m)	1.400
Base Level (m)	10.211
Paving Layer Depth (mm)	400
Membrane Percolation (m/hr)	30.0
Porosity (%)	30
Length (m)	100.377
Long. Slope (1:X)	1000.00
Width (m)	22.581
Total Volume (m³)	684.951

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Central Square
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)

Inlet Type	Point Inflow
Incoming Item(s)	Block 9 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (6)

Inlet Type	Point Inflow
Incoming Item(s)	SW-1.003
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 Public Realm (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-1.004
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	30.0

Block 5 and 6 Permeable Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	11.975
Depth (m)	1.700
Base Level (m)	10.275
Paving Layer Depth (mm)	300
Membrane Percolation (m/hr)	30.0
Porosity (%)	30
Length (m)	140.242
Long. Slope (1:X)	1000.00
Width (m)	7.187
Total Volume (m³)	434.180

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	375
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 Public Realm
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (6)

Inlet Type	Point Inflow
Incoming Item(s)	SW-1.000
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (7)

Inlet Type	Point Inflow
Incoming Item(s)	SW-2.001
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-1.001
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	30.0

Block 8 Permeable Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	11.900
Depth (m)	1.500
Base Level (m)	10.400
Paving Layer Depth (mm)	400
Membrane Percolation (m/hr)	30.0
Porosity (%)	30
Length (m)	88.170
Long. Slope (1:X)	300.00
Width (m)	8.246
Total Volume (m³)	244.301

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 8 Public Realm
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-7.000
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	30.0

Block 9 Permeable Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	11.900
Depth (m)	1.500
Base Level (m)	10.400
Paving Layer Depth (mm)	400
Membrane Percolation (m/hr)	30.0
Porosity (%)	30
Length (m)	88.958
Long. Slope (1:X)	300.00
Width (m)	9.015
Total Volume (m³)	269.039

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	300
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 9 Public Realm
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-4.000
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	30.0

Sitewide Tank

Type : Cellular Storage

Dimensions

Exceedance Level (m)	12.500
Depth (m)	1.000
Base Level (m)	9.944
Number of Crates Long	120
Number of Crates Wide	16
Number of Crates High	2
Porosity (%)	100
Crate Length (m)	0.5
Crate Width (m)	0.5
Crate Height (m)	0.5
Total Volume (m^3)	481.556

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Southern Highway (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	SW-4.000
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	SW-1.006
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-1.007
Outlet Type	Free Discharge

Advanced

Friction Scheme	Manning's n
n	0.009

Block 5 Tank

Type : Cellular Storage

Dimensions

Exceedance Level (m)	11.900
Depth (m)	0.700
Base Level (m)	10.288
Number of Crates Long	150
Number of Crates Wide	14
Number of Crates High	1
Porosity (%)	100
Crate Length (m)	0.5
Crate Width (m)	0.5
Crate Height (m)	0.7
Total Volume (m^3)	368.412

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 & 6 Service Road
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-2.001
Outlet Type	Free Discharge

Block 6 Tank

Type : Cellular Storage

Dimensions

Exceedance Level (m)	11.900
Depth (m)	0.700
Base Level (m)	10.288
Number of Crates Long	55
Number of Crates Wide	35
Number of Crates High	1
Porosity (%)	100
Crate Length (m)	0.5
Crate Width (m)	0.5
Crate Height (m)	0.7
Total Volume (m^3)	337.787

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 6 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	SW-1.000
Outlet Type	Free Discharge

Project:	Date:		
Project Otter (Southern Catchment Model) Beehive Centre Cambridge	08/07/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Junctions Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH-5	FEH: 2 years: +0 %: 960 mins: Winter	13.915	9.700	9.750	0.050	4.1	0.000	0.000	4.1	283.505	OK
MH-4	FEH: 2 years: +0 %: 1440 mins: Summer	12.169	9.892	10.268	0.376	5.0	0.956	0.000	4.1	361.587	Surcharged
MH-2	FEH: 2 years: +0 %: 1440 mins: Summer	12.772	10.117	10.267	0.150	5.8	0.382	0.000	5.9	131.174	OK
MH-3	FEH: 2 years: +0 %: 1440 mins: Summer	12.718	9.999	10.267	0.268	5.9	0.682	0.000	5.9	131.141	OK
MH-1	FEH: 2 years: +0 %: 120 mins: Summer	11.664	10.231	10.512	0.281	5.6	0.714	0.000	5.6	31.886	OK

FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH-5	FEH: 30 years: +35 %: 30 mins: Summer	13.915	9.700	9.750	0.050	4.1	0.000	0.000	4.1	10.450	OK
MH-4	FEH: 30 years: +35 %: 960 mins: Summer	12.169	9.892	10.326	0.434	8.5	1.104	0.000	4.1	355.810	Surcharged
MH-2	FEH: 30 years: +35 %: 960 mins: Summer	12.772	10.117	10.326	0.209	8.5	0.532	0.000	7.9	91.202	OK
MH-3	FEH: 30 years: +35 %: 960 mins: Summer	12.718	9.999	10.326	0.327	7.9	0.832	0.000	7.4	92.182	OK
MH-1	FEH: 30 years: +35 %: 60 mins: Summer	11.664	10.231	10.854	0.623	28.3	1.585	0.000	28.4	48.788	Surcharged

FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH-5	FEH: 100 years: +40 %: 60 mins: Winter	13.915	9.700	9.750	0.050	4.1	0.000	0.000	4.1	22.824	OK
MH-4	FEH: 100 years: +40 %: 480 mins: Summer	12.169	9.892	10.340	0.448	10.4	1.141	0.000	4.1	241.636	Surcharged
MH-2	FEH: 100 years: +40 %: 480 mins: Summer	12.772	10.117	10.341	0.224	7.8	0.570	0.000	7.2	38.865	OK
MH-3	FEH: 100 years: +40 %: 480 mins: Summer	12.718	9.999	10.341	0.342	7.2	0.870	0.000	6.6	40.235	OK
MH-1	FEH: 100 years: +40 %: 30 mins: Summer	11.664	10.231	10.959	0.728	86.6	1.853	0.000	55.3	106.321	Surcharged

Project:	Date:		
Project Otter (Southern Catchment Model) Beehive Centre Cambridge	08/07/2024		
	Designed by:	Checked by:	Approved By:
	GJ	CP	CP
Report Details:	Company Address:		
Type: Stormwater Controls Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Central Square Permeable Paving	FEH: 2 years: +0 %: 15 mins: Summer	10.477	10.211	0.166	0.000	89.5	39.221	0.000	0.000	0.0	5.653	94.274	OK
Block 5 and 6 Permeable Paving	FEH: 2 years: +0 %: 15 mins: Summer	10.436	10.275	0.020	0.000	7.6	1.240	0.000	0.000	0.0	2.887	99.714	OK
Block 8 Permeable Paving	FEH: 2 years: +0 %: 15 mins: Summer	10.775	10.403	0.081	0.003	16.3	6.833	0.000	0.000	0.0	0.004	97.203	OK
Block 9 Permeable Paving	FEH: 2 years: +0 %: 15 mins: Summer	10.817	10.448	0.120	0.048	34.6	14.296	0.000	0.000	3.3	0.704	94.686	OK
Sitewide Tank	FEH: 2 years: +0 %: 15 mins: Summer	9.979	9.979	0.035	0.035	41.1	16.966	0.000	0.000	2.0	1.595	96.477	OK
Block 5 Tank	FEH: 2 years: +0 %: 15 mins: Summer	10.412	10.412	0.124	0.124	148.3	65.177	0.000	0.000	0.0	0.000	82.309	OK
Block 6 Tank	FEH: 2 years: +0 %: 15 mins: Summer	10.348	10.348	0.060	0.060	65.4	28.886	0.000	0.000	0.0	0.000	91.448	OK
Park Rain Garden	FEH: 2 years: +0 %: 15 mins: Summer	10.588	10.100	0.400	0.000	91.3	109.785	0.000	0.000	0.0	0.000	93.203	OK
Block 5 Rain Garden	FEH: 2 years: +0 %: 15 mins: Summer	10.485	10.480	0.071	0.228	15.4	24.052	0.000	0.000	5.2	4.990	89.273	OK
Block 8 Rain Garden	FEH: 2 years: +0 %: 15 mins: Summer	11.130	10.024	1.001	0.024	74.1	60.135	0.000	0.000	1.2	0.151	91.148	OK
Highway Rain Garden (1)	FEH: 2 years: +0 %: 15 mins: Summer	10.254	10.130	0.000	0.000	0.0	4.512	0.000	0.000	0.0	0.000	97.109	OK
Park Rain Garden (1)	FEH: 2 years: +0 %: 15 mins: Summer	10.399	10.140	0.000	0.000	30.9	56.511	0.000	0.000	0.0	0.000	94.354	OK

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Report Details:	Company Address:		
Type: Stormwater Controls Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Central Square Permeable Paving	FEH: 30 years: +35 %: 15 mins: Summer	10.852	10.237	0.541	0.026	322.0	135.370	0.000	0.000	1.0	17.263	80.237	OK
Block 5 and 6 Permeable Paving	FEH: 30 years: +35 %: 15 mins: Summer	10.588	10.277	0.173	0.002	92.9	30.985	0.000	0.000	0.0	46.394	92.864	OK
Block 8 Permeable Paving	FEH: 30 years: +35 %: 15 mins: Summer	10.874	10.616	0.180	0.216	58.6	24.480	0.000	0.000	0.5	0.912	89.980	OK
Block 9 Permeable Paving	FEH: 30 years: +35 %: 15 mins: Summer	11.017	10.605	0.321	0.205	124.4	49.667	0.000	0.000	33.0	22.828	81.539	OK
Sitewide Tank	FEH: 30 years: +35 %: 15 mins: Summer	10.146	10.146	0.202	0.202	147.9	96.824	0.000	0.000	8.5	5.181	79.893	OK
Block 5 Tank	FEH: 30 years: +35 %: 15 mins: Summer	10.658	10.658	0.370	0.370	525.2	194.177	0.000	0.000	86.7	68.676	47.294	OK
Block 6 Tank	FEH: 30 years: +35 %: 15 mins: Summer	10.589	10.589	0.301	0.301	241.0	144.638	0.000	0.000	1.3	0.017	57.181	OK
Park Rain Garden	FEH: 30 years: +35 %: 15 mins: Summer	10.635	10.103	0.448	0.003	328.6	205.356	0.000	0.000	0.0	4.391	87.286	OK
Block 5 Rain Garden	FEH: 30 years: +35 %: 15 mins: Summer	10.847	10.909	0.433	0.657	31.0	67.887	0.000	0.000	29.9	21.174	69.722	OK
Block 8 Rain Garden	FEH: 30 years: +35 %: 15 mins: Summer	11.134	10.229	1.005	0.229	266.6	140.690	0.000	0.000	33.6	19.898	79.290	OK
Highway Rain Garden (1)	FEH: 30 years: +35 %: 15 mins: Summer	10.405	10.410	0.151	0.280	16.7	19.840	0.000	0.000	4.6	1.809	87.288	OK
Park Rain Garden (1)	FEH: 30 years: +35 %: 15 mins: Summer	10.750	10.149	0.351	0.009	111.2	92.322	0.000	0.000	0.0	0.000	90.776	OK

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Report Details:	Company Address:		
Type: Stormwater Controls Summary Storm Phase: Phase	Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Central Square Permeable Paving	FEH: 100 years: +40 %: 15 mins: Summer	10.967	10.228	0.655	0.017	431.9	146.859	0.000	0.000	0.5	46.389	78.559	OK
Block 5 and 6 Permeable Paving	FEH: 100 years: +40 %: 15 mins: Summer	10.681	10.310	0.266	0.035	158.2	48.326	0.000	0.000	0.2	57.720	88.869	OK
Block 8 Permeable Paving	FEH: 100 years: +40 %: 15 mins: Summer	10.914	10.858	0.220	0.458	78.7	67.235	0.000	0.000	2.6	1.507	72.479	OK
Block 9 Permeable Paving	FEH: 100 years: +40 %: 15 mins: Summer	11.164	10.637	0.468	0.237	166.8	66.313	0.000	0.000	41.6	24.895	75.352	OK
Sitewide Tank	FEH: 100 years: +40 %: 15 mins: Summer	10.181	10.181	0.237	0.237	198.3	113.674	0.000	0.000	12.0	7.425	76.395	OK
Block 5 Tank	FEH: 100 years: +40 %: 15 mins: Summer	10.758	10.758	0.470	0.470	704.5	246.579	0.000	0.000	150.0	106.474	33.070	OK
Block 6 Tank	FEH: 100 years: +40 %: 15 mins: Summer	10.682	10.682	0.394	0.394	335.1	189.532	0.000	0.000	18.1	5.802	43.890	OK
Park Rain Garden	FEH: 100 years: +40 %: 15 mins: Summer	10.731	10.207	0.543	0.107	440.8	245.007	0.000	0.000	0.0	41.755	84.831	OK
Block 5 Rain Garden	FEH: 100 years: +40 %: 15 mins: Summer	10.911	11.921	0.497	1.669	81.9	132.408	0.000	0.000	71.1	42.312	40.945	Flood Risk
Block 8 Rain Garden	FEH: 100 years: +40 %: 15 mins: Summer	11.147	10.215	1.018	0.215	358.8	160.196	0.000	0.000	26.3	38.743	76.419	OK
Highway Rain Garden (1)	FEH: 100 years: +40 %: 15 mins: Summer	10.728	11.409	0.474	1.279	32.1	52.899	0.000	0.000	37.3	17.584	66.104	OK
Park Rain Garden (1)	FEH: 100 years: +40 %: 15 mins: Summer	10.750	10.334	0.351	0.194	149.2	131.359	0.000	0.000	0.0	0.000	86.876	OK

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Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW-1.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Block 5 and 6 Permeable Paving	Block 5 Rain Garden	11.370	10.279	0.000	0.000	0.0	0	0.0	OK
SW-1.002	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	Block 5 Rain Garden	MH-1	11.603	10.407	0.244	4.000	0.1	0.05	6.4	OK
SW-1.003	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH-1	Central Square Permeable Paving	11.664	10.485	0.214	5.553	0.1	0.06	6.7	OK
SW-1.004	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	Central Square Permeable Paving	MH-2	12.369	10.355	0.107	66.322	0.7	0.12	13.7	OK
SW-1.005	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	MH-2	MH-3	12.772	10.264	0.205	66.333	0.4	0.12	13.3	OK
SW-1.008	FEH: 2 years: +0 %: 960 mins: Winter	Pipe	MH-4	MH-5	12.169	10.253	0.051	283.505	0.6	0.11	4.1	Surcharged
SW-5.002	FEH: 2 years: +0 %: 240 mins: Winter	Pipe	Block 8 Rain Garden	MH-4	12.164	11.000	0.260	63.611	0.5	0.05	11.9	Surcharged
SW-5.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Park Rain Garden	Block 8 Rain Garden	15.790	10.500	0.001	0.006	0.0	0	0.0	Surcharged
SW-7.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Block 8 Permeable Paving	Block 8 Rain Garden	12.225	10.431	0.002	0.007	0.0	0	0.0	OK
SW-4.000	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	Block 9 Permeable Paving	Sitewide Tank	12.326	10.475	0.048	36.034	0.8	0.03	6.6	OK
SW-5.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Park Rain Garden (1)	Park Rain Garden	11.767	10.140	0.000	0.000	0.0	0	0.0	OK
SW-6.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Highway Rain Garden (1)	Park Rain Garden	11.679	10.130	0.000	0.000	0.0	0	0.0	OK
SW-1.007	FEH: 2 years: +0 %: 480 mins: Winter	Pipe	Sitewide Tank	MH-4	12.154	10.214	0.296	111.205	0.2	0.06	6.8	OK
SW-1.006	FEH: 2 years: +0 %: 480 mins: Summer	Pipe	MH-3	Sitewide Tank	12.718	10.263	0.291	66.030	0.2	0.11	12.9	OK
SW-1.000	FEH: 2 years: +0 %: 1440 mins: Winter	Pipe	Block 6 Tank	Block 5 and 6 Permeable Paving	11.293	10.637	0.286	69.848	0.1	0.07	6.3	OK
SW-2.001	FEH: 2 years: +0 %: 240 mins: Summer	Pipe	Block 5 Tank	Block 5 and 6 Permeable Paving	11.048	10.540	0.189	1.739	0.5	0.15	19.8	OK

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Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW-1.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 5 and 6 Permeable Paving	Block 5 Rain Garden	11.370	10.377	0.001	0.000	0.0	0	0.0	OK
SW-1.002	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	Block 5 Rain Garden	MH-1	11.603	10.998	0.400	16.872	0.3	0.36	43.0	Surcharged
SW-1.003	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH-1	Central Square Permeable Paving	11.664	10.850	0.400	23.192	0.3	0.37	43.6	Surcharged
SW-1.004	FEH: 30 years: +35 %: 30 mins: Winter	Pipe	Central Square Permeable Paving	MH-2	12.369	10.417	0.090	8.987	0.6	0.11	12.3	OK
SW-1.005	FEH: 30 years: +35 %: 30 mins: Winter	Pipe	MH-2	MH-3	12.772	10.217	0.156	7.964	0.3	0.1	11.0	OK
SW-1.008	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH-4	MH-5	12.169	10.252	0.051	10.450	0.6	0.11	4.1	Surcharged
SW-5.002	FEH: 30 years: +35 %: 60 mins: Summer	Pipe	Block 8 Rain Garden	MH-4	12.164	11.001	0.346	38.856	0.5	0.16	37.9	Surcharged
SW-5.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Park Rain Garden	Block 8 Rain Garden	15.790	10.510	0.004	0.035	0.0	0	0.0	Surcharged
SW-7.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Block 8 Permeable Paving	Block 8 Rain Garden	12.225	10.512	0.108	0.043	0.0	0	0.0	OK
SW-4.000	FEH: 30 years: +35 %: 60 mins: Summer	Pipe	Block 9 Permeable Paving	Sitewide Tank	12.326	10.638	0.123	43.304	1.3	0.2	41.2	OK
SW-5.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	Park Rain Garden (1)	Park Rain Garden	11.767	10.490	0.026	0.951	0.0	0	0.0	OK
SW-6.000	FEH: 30 years: +35 %: 60 mins: Summer	Pipe	Highway Rain Garden (1)	Park Rain Garden	11.679	10.628	0.302	7.512	0.2	0.14	15.7	Surcharged
SW-1.007	FEH: 30 years: +35 %: 120 mins: Summer	Pipe	Sitewide Tank	MH-4	12.154	10.274	0.356	21.563	0.2	0.08	9.6	OK
SW-1.006	FEH: 30 years: +35 %: 30 mins: Winter	Pipe	MH-3	Sitewide Tank	12.718	10.214	0.243	5.795	0.1	0.09	10.0	OK
SW-1.000	FEH: 30 years: +35 %: 240 mins: Summer	Pipe	Block 6 Tank	Block 5 and 6 Permeable Paving	11.293	10.761	0.400	54.354	0.3	0.39	35.4	Surcharged
SW-2.001	FEH: 30 years: +35 %: 60 mins: Summer	Pipe	Block 5 Tank	Block 5 and 6 Permeable Paving	11.048	10.721	0.358	1.469	1.1	0.87	116.0	Surcharged

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Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Waterman Group Pickfords Wharf, Clink Street, London SE1 9DG		

FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
SW-1.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 5 and 6 Permeable Paving	Block 5 Rain Garden	11.370	10.435	0.018	0.000	0.0	0	0.0	OK
SW-1.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 5 Rain Garden	MH-1	11.603	11.801	0.400	0.000	0.6	0.6	71.1	Flood Risk
SW-1.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH-1	Central Square Permeable Paving	11.664	10.949	0.400	43.551	0.6	0.61	70.9	Surcharged
SW-1.004	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	Central Square Permeable Paving	MH-2	12.369	10.338	0.149	62.239	0.6	0.07	8.6	OK
SW-1.005	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	MH-2	MH-3	12.772	10.313	0.255	60.572	0.5	0.07	8.1	OK
SW-1.008	FEH: 100 years: +40 %: 60 mins: Winter	Pipe	MH-4	MH-5	12.169	10.333	0.051	22.824	0.6	0.11	4.1	Surcharged
SW-5.002	FEH: 100 years: +40 %: 60 mins: Winter	Pipe	Block 8 Rain Garden	MH-4	12.164	11.000	0.375	37.816	0.5	0.16	38.3	Surcharged
SW-5.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Park Rain Garden	Block 8 Rain Garden	15.790	10.529	0.063	9.560	0.0	0	0.0	Surcharged
SW-7.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Block 8 Permeable Paving	Block 8 Rain Garden	12.225	10.708	0.229	12.747	0.0	0	0.0	OK
SW-4.000	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Block 9 Permeable Paving	Sitewide Tank	12.326	10.712	0.136	48.458	1.4	0.24	49.8	OK
SW-5.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Park Rain Garden (1)	Park Rain Garden	11.767	10.490	0.132	26.708	0.0	0	0.0	OK
SW-6.000	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Highway Rain Garden (1)	Park Rain Garden	11.679	11.522	0.375	19.786	0.5	0.37	40.9	Surcharged
SW-1.007	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Sitewide Tank	MH-4	12.154	10.297	0.375	3.591	0.3	0.11	12.6	OK
SW-1.006	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	MH-3	Sitewide Tank	12.718	10.313	0.341	58.339	0.3	0.07	7.7	OK
SW-1.000	FEH: 100 years: +40 %: 60 mins: Summer	Pipe	Block 6 Tank	Block 5 and 6 Permeable Paving	11.293	10.833	0.400	71.545	0.4	0.56	50.4	Surcharged
SW-2.001	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	Block 5 Tank	Block 5 and 6 Permeable Paving	11.048	10.815	0.400	0.506	1.3	1.21	161.9	Surcharged

H. Statutory Authority Consultations

Pre-Planning Assessment Report

Beehive Centre

InFlow Reference: PPE-0211319

Assessment Type: Used Water

Report published: 05/08/2024

Thank you for submitting a pre-planning enquiry.

This has been produced for Waterman Infrastructure & Environment.

Your reference number is **PPE-0211319**.

This report can be submitted as a drainage strategy for the development should it seek planning permission.

If you have any questions upon receipt of this report, you can submit a further question via InFlow. Alternatively, please contact the Planning & Capacity team on **07929 786 955** or email planningliaison@anglianwater.co.uk

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Section 1 - Proposed development

The response within this report has been based on the following information which was submitted as part of your application:

List of planned developments	
Type of development	**No. Of units**
Business	5

The anticipated residential build rate is:

Year	Y1
Build rate	5

Development type: Brownfield

Planning application status: Pending Consideration

Site grid reference number: TL4662258561

The comments contained within this report relate to the public water mains and sewers indicated on our records.

Your attention is drawn to the disclaimer in the useful information section of this report.

Section 2 - Assets affected

Our records indicate that we have the following types of assets within or overlapping the boundary of your development site as listed in the table below.

Additionally, it is highly recommended that you carry out a thorough investigation of your proposed working area to establish whether any unmapped public or private sewers and lateral drains are in existence. We are unable to permit development either over or within the easement strip without our prior consent. The extent of the easement is provided in the table below. Please be aware that the existing water mains/public sewers should be located in highway or open space and not in private gardens. This is to ensure available access for any future maintenance and repair and this should be taken into consideration when planning your site layout.

Water and Used water easement information		
Asset type	Pipe size (mm)	Total easement required (m)
Sewer mains	375	3.00 m either side of the centre line
Sewer mains	450	3.50 m either side of the centre line
Sewer mains	525	3.50 m either side of the centre line

If it is not possible to avoid our assets then these may need to be diverted in accordance with Section 185 of the Water Industry Act (1991). You will need to make a formal application if you would like a diversion to be considered.

Due to the private sewer transfer in October 2011 many newly adopted public used water assets and their history are not indicated on our records. You also need to be aware that your development site may contain private water mains, drains or other assets not shown on our records. These are private assets and not the responsibility of Anglian Water but that of the landowner.

Section 3 - Water recycling services

In examining the used water system we assess the ability for your site to connect to the public sewerage network without causing a detriment to the operation of the system. We also assess the receiving water recycling centre and determine whether the water recycling centre can cope with the increased flow and effluent quality arising from your development.

Water recycling centre

The foul drainage from this development is in the catchment of Cambridge Water Recycling Centre which currently does not have capacity to treat the flows from the development site. Anglian Water has applied to the Environment Agency for an interim new permit to address exceedance. Please note that it is Anglian Water responsibility to take the necessary steps to ensure there is capacity to accommodate the domestic flows from the proposed development.

Our long-term plans for Cambridge WRC are linked to the Cambridge relocation project and the Development Consent Order. The new Cambridge WRC will take all existing domestic flows from current Cambridge WRC and all flows from the future growth within the WRC catchment. We are working with Greater Cambridgeshire to understand the long-term growth figures, using the emerging local plan allocations and planning permissions. This allows us to design and deliver a new Cambridge WRC which can meet future demand.

Used water network

Our assessment has been based on development flows connecting to the nearest foul water sewer of the same size or greater pipe diameter to that required to drain the site. The infrastructure to convey foul water flows to the receiving sewerage network is assumed to be the responsibility of the developer. Conveyance to the connection point is considered as Onsite Work and includes all work carried out upstream from of the point of connection, including making the connection to our existing network.

This connection point has been determined in reference to the calculated discharge flow and on this basis, a 200mm internal diameter pipe is required to drain the development site. We have assessed your preferred connection points is to the 450mm sewer in Coldhams lane and to the 300mm sewer in York Street.

The sewer in Coldhams Lane has been assessed at manhole MH7701 at National Grid reference (NGR) TL 46768 58720, the cover level is unavailable and the invert level is 8.14, and the sewer in York Street has been assessed at manhole MH4401 at NGR TL 46448 58470, the cover and invert levels for this manhole are unavailable in our asset record.

Anglian Water has assessed the impact of gravity flows from the planned development to the public foul sewerage network. We can confirm that this is acceptable as the foul sewerage system, at present, has available capacity for your site. Please note that Anglian Water will request a suitably worded condition at planning application stage to ensure this strategy is implemented to mitigate the risk of flooding.

It is assumed that the developer will provide the necessary infrastructure to convey flows from the site to the network. Consequently, this report does not include any costs for the conveyance of flows.

Surface water disposal

In principle, your proposed method of surface water disposal is acceptable to Anglian Water. It is our understanding that the evidence to confirm compliance with the surface water hierarchy is not available.

Once the evidence has been confirmed, then connection points may be made to the 525mm surface water sewer in York Street, downstream of manhole MH3652, at NGR TL 46426 58531 and to the 375mm surface water sewer in Coldhams Lane, downstream of manhole MH6751, at NGR TL 46629 58785. These connections may discharge at a total site wide rate of 7.1 litres per second (l/s).

Our assessment has been based on development flows connecting to the nearest surface water sewer of adequate size to drain the proposed development. It is your responsibility to provide the evidence to confirm that all alternative methods of surface water disposal have been explored and these will be required before your connection can be agreed.

This is subject to satisfactory evidence which shows the surface water management hierarchy as outlined in Building Regulations Part H has been explored. This would encompass the results from the site specific infiltration testing and/or confirmation that the flows cannot be discharged to a watercourse. Anglian Water's surface water policy follows the Surface Water hierarchy, outlined in Part H of the Building Regulations. Should your assumptions or evidence change then an alternative solution, connection point or flow rate may be required. You are therefore advised to update Anglian Water with the key supporting evidence at your earliest convenience.

As you may be aware, Anglian Water will consider the adoption of SuDs provided that they meet the criteria outline in our SuDs adoption manual. This can be found on our website. We will adopt features located in public open space that are designed and constructed, in conjunction with the Local Authority and Lead Local Flood Authority (LLFA), to the criteria within our SuDs adoption manual. Specifically, developers must be able to demonstrate:

1. Effective upstream source control,
2. Effective exceedance design, and
3. Effective maintenance schedule demonstrating than the assets can be maintained both now and in the future with adequate access.

If you wish to look at the adoption of any SuDs then an expression of interest form can be found on our website

Trade Effluent

We note that you do not have any trade effluent requirements. Should this be required in the future you will need our written formal consent. This is in accordance with Section 118 of the Water Industry Act (1991).

Used Water Budget Costs

Your development site will be required to pay an Infrastructure charge for each new property connecting to the public water and sewerage network that benefits from Full planning permission. The infrastructure charge replaces the zonal charge as previously identified.

You will be required to pay an infrastructure charge upon connection for each new plot on your development site. The infrastructure charge are types of charges set out in Section 146(2) of the Water Industry Act 1991.

The charge should be paid by anyone who wishes to build or develop a property and is payable upon request of connection.

- The Infrastructure Charge is based on the cost of any reinforcement and upgrades to our existing network ("Network Reinforcements"), whether designed to address strategic or local capacity issues. For more information on our Infrastructure Charge, please see the 'Useful Information' section of this report.

Infrastructure charges are raised on a standard basis of one charge per new connection (one for water and one for sewerage).

The Water Recycling Infrastructure charge for your dwellings is:

Infrastructure charge	Number of units	Total
£ To be Confirmed (TBC)	5	£TBC

Please note that you should also budget for infrastructure charges on non-household premises where applicable and these will be calculated according to the number and type of water fittings in the premises. This is called the "relevant multiplier" method of calculating the charge and the relevant multiplier will be applied to the figures set out in our 2024-25 Developer Charging Arrangements to arrive at the amount payable. Details of the relevant multiplier for each fitting can be found on our website.

Section 4 – Points of Connection

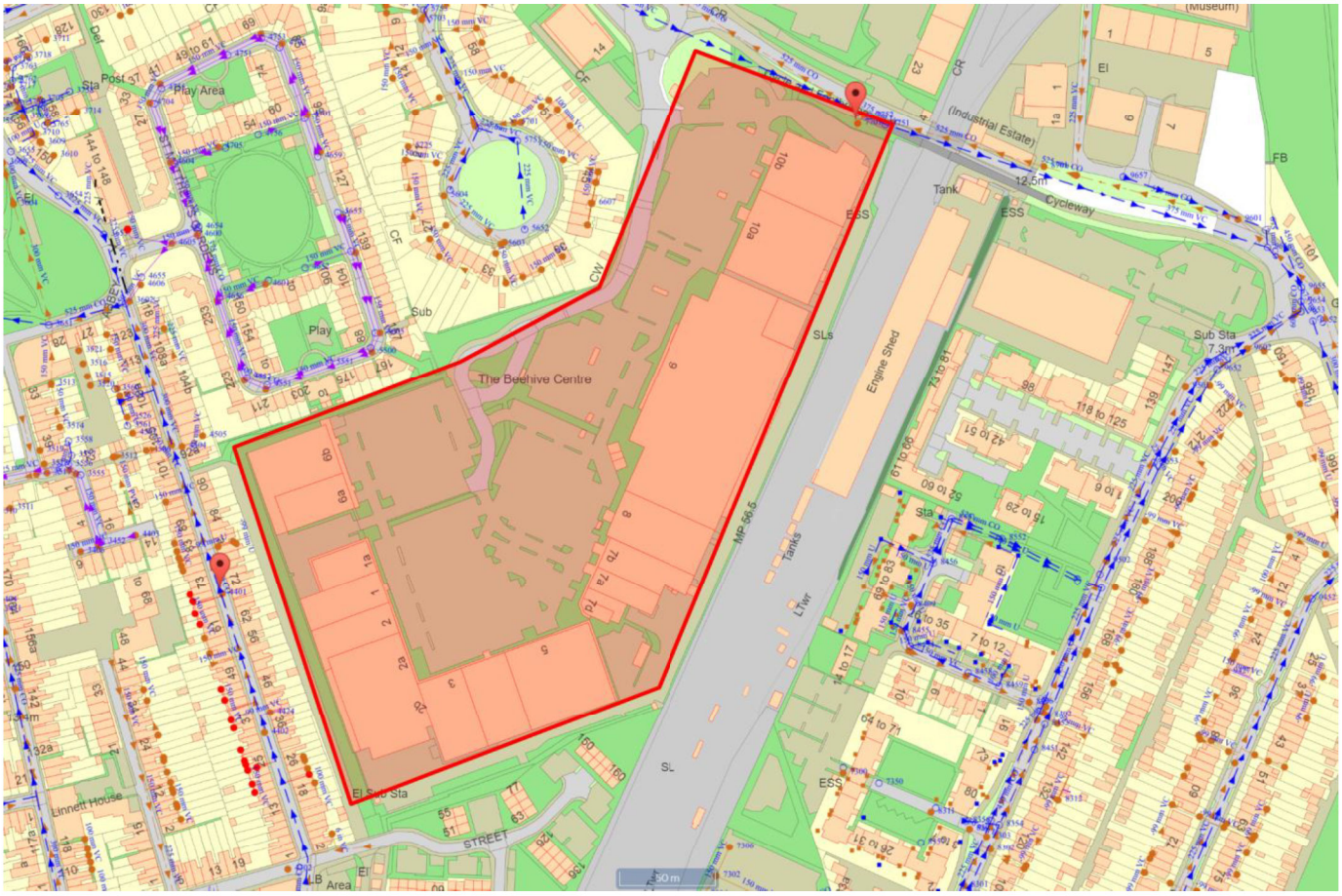

Figure 1 – Showing your water recycling foul points of connection

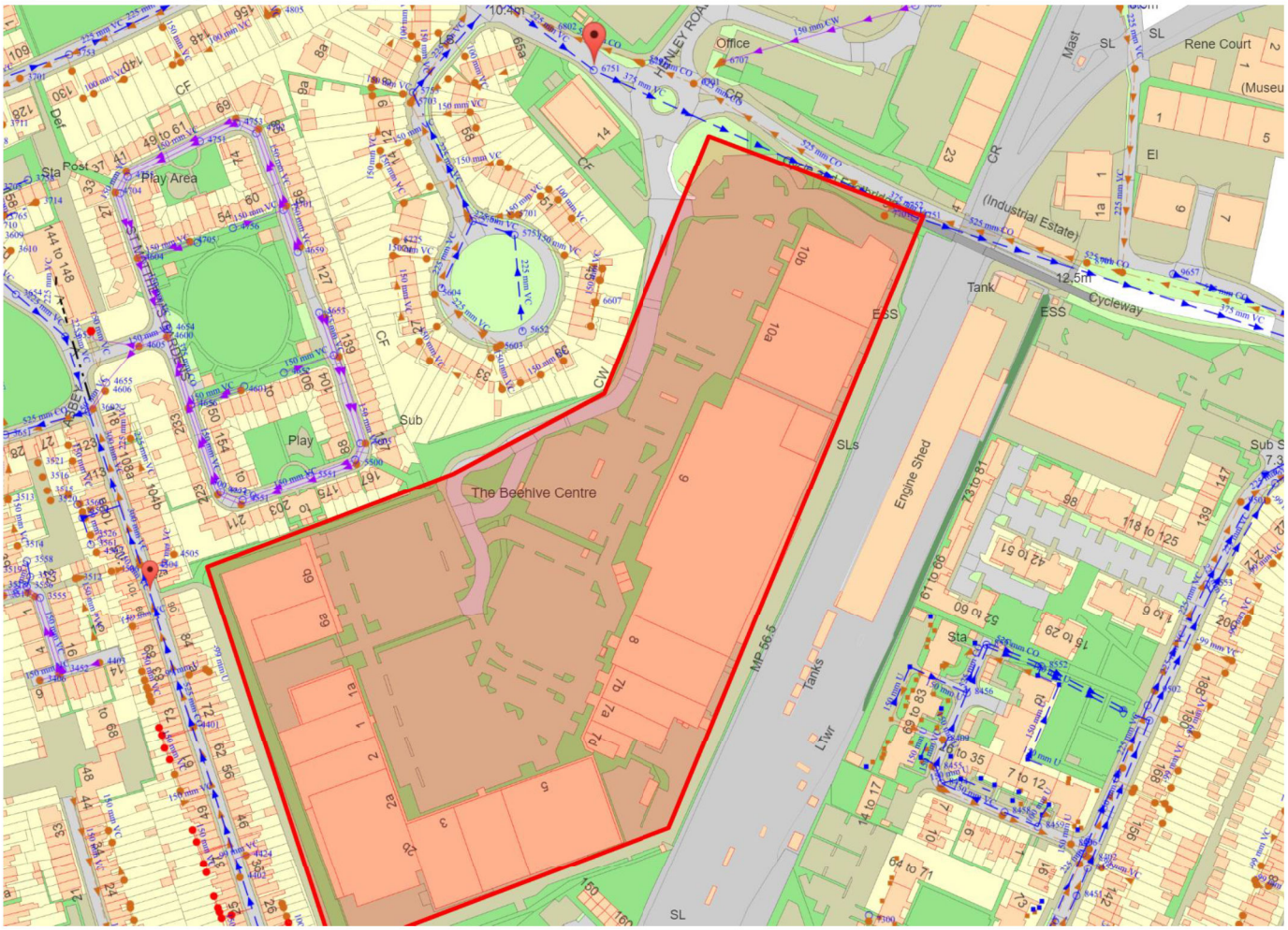

Figure 2 – Showing your water recycling surface water points of connection