

Results for 30 year +5% A Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	49.064	0.114	35.7	0.1637	0.0000	OK
15 minute summer	S2	10	48.852	0.142	92.1	0.2036	0.0000	OK
15 minute summer	S3	10	47.431	0.161	54.0	0.2301	0.0000	OK
15 minute summer	S4	10	47.205	0.305	76.7	0.4371	0.0000	OK
15 minute summer	S5	10	47.191	0.361	200.6	0.4082	0.0000	OK
15 minute summer	S6	11	47.060	0.297	223.7	0.4249	0.0000	OK
15 minute summer	S7	11	46.756	0.223	253.1	0.2524	0.0000	OK
60 minute winter	S9	60	46.238	1.088	133.7	3.7684	0.0000	SURCHARGED
60 minute winter	TANK A1	60	46.239	0.689	132.2	144.6998	0.0000	SURCHARGED
480 minute winter	S10	416	45.120	0.770	25.1	1.9600	0.0000	SURCHARGED
15 minute summer	S12	10	46.253	0.053	13.3	0.0759	0.0000	OK
15 minute summer	S13	10	45.431	0.306	54.5	0.4383	0.0000	SURCHARGED
15 minute summer	S14	10	44.886	0.141	101.8	0.2021	0.0000	OK
15 minute summer	S15	10	44.073	0.173	126.2	0.2470	0.0000	OK
600 minute winter	S16	630	44.031	0.521	11.3	0.7454	0.0000	SURCHARGED
600 minute winter	HW	630	44.031	0.761	19.2	1.0888	0.0000	SURCHARGED
600 minute winter	BASIN A	630	44.031	0.831	33.6	211.2275	0.0000	SURCHARGED
600 minute winter	S17	630	44.031	0.851	13.5	1.5030	0.0000	SURCHARGED
60 minute summer	OUTFALL	91	43.173	0.073	13.4	0.0000	0.0000	OK
480 minute winter	TANK A2	416	45.120	0.730	8.8	129.4119	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	35.5	1.234	0.280	0.5336	
15 minute summer	S2	1.002	S5	91.4	2.380	0.464	2.3754	
15 minute summer	S3	2.000	S4	53.7	1.429	0.501	0.8887	
15 minute summer	S4	2.001	S5	75.6	0.602	0.374	2.2314	
15 minute summer	S5	1.003	S6	199.9	1.612	0.919	1.8151	
15 minute summer	S6	3.002	S7	225.0	2.420	0.653	1.9217	
15 minute summer	S7	3.001	S9	255.4	1.883	0.379	3.7971	
60 minute winter	S9	4.000	S10	20.2	0.605	0.044	3.3465	
60 minute winter	TANK A1	3.000	S9	-112.3	-0.753	-0.361	6.8254	
480 minute winter	S10	1.007_A	BASIN A	15.7	1.152	0.031	3.8627	
15 minute summer	S12	1.005	S14	13.2	1.881	0.117	0.1853	
15 minute summer	S13	5.000	S14	53.4	1.353	1.221	0.8242	
15 minute summer	S14	1.006	S15	101.2	2.062	0.212	1.9129	
15 minute summer	S15	1.007	S16	125.0	2.017	0.267	1.1603	
600 minute winter	S16	1.008	HW	19.2	0.523	0.049	2.5631	
600 minute winter	HW	1.009	BASIN A	17.9	0.597	0.093	3.0895	
600 minute winter	BASIN A	1.010	S17	13.5	0.143	0.089	1.4159	
600 minute winter	S17	1.011	OUTFALL	13.4	1.116	0.231	0.0773	517.4
480 minute winter	TANK A2	4.000_A	S10	14.6	-0.263	0.094	2.7322	

Results for 30 year +40% CC +5% A Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	49.091	0.141	50.0	0.2021	0.0000	OK
15 minute summer	S2	10	48.884	0.174	129.0	0.2494	0.0000	OK
15 minute summer	S3	11	47.491	0.221	75.8	0.3158	0.0000	OK
15 minute summer	S4	11	47.392	0.492	104.7	0.7047	0.0000	SURCHARGED
15 minute summer	S5	11	47.362	0.532	281.0	0.6013	0.0000	SURCHARGED
15 minute summer	S6	11	47.168	0.405	311.7	0.5792	0.0000	OK
15 minute summer	S7	11	46.887	0.354	352.5	0.3999	0.0000	OK
120 minute winter	S9	108	46.631	1.481	115.9	5.1290	0.0000	SURCHARGED
120 minute winter	TANK A1	110	46.630	1.080	110.3	226.8331	0.0000	SURCHARGED
480 minute summer	S10	528	45.501	1.151	29.4	2.9298	0.0000	SURCHARGED
15 minute summer	S12	10	46.263	0.063	18.6	0.0903	0.0000	OK
15 minute summer	S13	10	45.733	0.608	76.5	0.8704	0.0000	SURCHARGED
15 minute summer	S14	10	44.915	0.170	142.8	0.2439	0.0000	OK
960 minute winter	S15	990	44.325	0.425	10.8	0.6078	0.0000	OK
960 minute winter	S16	990	44.325	0.815	10.8	1.1659	0.0000	SURCHARGED
960 minute winter	HW	990	44.325	1.055	27.6	1.5093	0.0000	SURCHARGED
960 minute winter	BASIN A	990	44.325	1.125	29.6	319.1536	0.0000	SURCHARGED
960 minute winter	S17	990	44.324	1.144	13.5	2.0223	0.0000	SURCHARGED
60 minute winter	OUTFALL	41	43.173	0.073	13.4	0.0000	0.0000	OK
480 minute summer	TANK A2	528	45.501	1.111	13.2	196.8945	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	49.7	1.324	0.393	0.6956	
15 minute summer	S2	1.002	S5	128.0	2.325	0.650	3.1236	
15 minute summer	S3	2.000	S4	74.0	1.436	0.690	1.4870	
15 minute summer	S4	2.001	S5	105.5	0.666	0.522	2.8190	
15 minute summer	S5	1.003	S6	278.3	1.758	1.279	2.2694	
15 minute summer	S6	3.002	S7	313.0	2.369	0.909	2.8802	
15 minute summer	S7	3.001	S9	353.7	2.283	0.525	4.6822	
120 minute winter	S9	4.000	S10	23.6	0.648	0.051	4.3193	
120 minute winter	TANK A1	3.000	S9	-93.0	-0.587	-0.298	6.8254	
480 minute summer	S10	1.007_A	BASIN A	15.7	1.223	0.031	3.8627	
15 minute summer	S12	1.005	S14	18.4	2.065	0.164	0.2362	
15 minute summer	S13	5.000	S14	75.2	1.890	1.716	0.8550	
15 minute summer	S14	1.006	S15	142.1	2.201	0.297	2.5125	
960 minute winter	S15	1.007	S16	10.8	1.078	0.023	2.9244	
960 minute winter	S16	1.008	HW	24.5	0.497	0.062	2.5631	
960 minute winter	HW	1.009	BASIN A	13.9	0.562	0.072	3.0895	
960 minute winter	BASIN A	1.010	S17	13.5	0.161	0.089	1.4159	
960 minute winter	S17	1.011	OUTFALL	13.4	1.116	0.231	0.0773	709.8
480 minute summer	TANK A2	4.000_A	S10	14.9	-0.290	0.096	2.7322	

Results for 100 year +5% A Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	49.082	0.132	45.0	0.1889	0.0000	OK
15 minute summer	S2	10	48.873	0.163	116.1	0.2335	0.0000	OK
15 minute summer	S3	10	47.459	0.189	68.1	0.2701	0.0000	OK
15 minute summer	S4	11	47.316	0.416	97.0	0.5955	0.0000	OK
15 minute summer	S5	11	47.295	0.465	250.2	0.5262	0.0000	SURCHARGED
15 minute summer	S6	11	47.120	0.357	280.6	0.5113	0.0000	OK
15 minute summer	S7	11	46.832	0.299	317.9	0.3386	0.0000	OK
60 minute winter	S9	60	46.504	1.354	171.1	4.6918	0.0000	SURCHARGED
60 minute winter	TANK A1	61	46.506	0.956	172.5	200.8142	0.0000	SURCHARGED
360 minute summer	S10	440	45.364	1.014	30.4	2.5814	0.0000	SURCHARGED
15 minute summer	S12	10	46.260	0.060	16.7	0.0854	0.0000	OK
15 minute summer	S13	10	45.619	0.494	68.8	0.7074	0.0000	SURCHARGED
15 minute summer	S14	10	44.905	0.160	128.3	0.2295	0.0000	OK
960 minute winter	S15	915	44.225	0.325	9.7	0.4652	0.0000	OK
960 minute winter	S16	930	44.225	0.715	13.5	1.0233	0.0000	SURCHARGED
960 minute winter	HW	930	44.225	0.955	19.4	1.3667	0.0000	SURCHARGED
960 minute winter	BASIN A	930	44.225	1.025	35.4	280.4189	0.0000	SURCHARGED
960 minute winter	S17	930	44.225	1.045	13.5	1.8462	0.0000	SURCHARGED
30 minute summer	OUTFALL	97	43.173	0.073	13.4	0.0000	0.0000	OK
360 minute summer	TANK A2	440	45.365	0.975	13.8	172.7116	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	44.7	1.297	0.353	0.6394	
15 minute summer	S2	1.002	S5	115.2	2.378	0.584	3.0323	
15 minute summer	S3	2.000	S4	68.1	1.401	0.635	1.3029	
15 minute summer	S4	2.001	S5	95.0	0.616	0.470	2.7716	
15 minute summer	S5	1.003	S6	250.6	1.650	1.152	2.1574	
15 minute summer	S6	3.002	S7	282.3	2.320	0.820	2.5063	
15 minute summer	S7	3.001	S9	319.6	2.158	0.474	4.3357	
60 minute winter	S9	4.000	S10	22.5	0.597	0.049	3.3568	
60 minute winter	TANK A1	3.000	S9	-147.1	-0.928	-0.472	6.8254	
360 minute summer	S10	1.007_A	BASIN A	15.7	1.283	0.031	3.8627	
15 minute summer	S12	1.005	S14	16.5	2.004	0.147	0.2184	
15 minute summer	S13	5.000	S14	67.3	1.694	1.538	0.8493	
15 minute summer	S14	1.006	S15	127.5	2.160	0.267	2.2999	
960 minute winter	S15	1.007	S16	9.7	1.067	0.021	2.6222	
960 minute winter	S16	1.008	HW	18.5	0.477	0.047	2.5631	
960 minute winter	HW	1.009	BASIN A	19.7	0.518	0.102	3.0895	
960 minute winter	BASIN A	1.010	S17	13.5	0.143	0.089	1.4159	
960 minute winter	S17	1.011	OUTFALL	13.4	1.116	0.231	0.0773	706.6
360 minute summer	TANK A2	4.000_A	S10	14.9	-0.311	0.096	2.7322	

Results for 100 year +45% CC +5% A Critical Storm Duration. Lowest mass balance: 99.06%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	11	49.377	0.427	65.1	0.6112	0.0000	SURCHARGED
15 minute summer	S2	11	49.326	0.616	169.9	0.8812	0.0000	SURCHARGED
15 minute summer	S3	11	48.440	1.170	98.7	1.6745	0.0000	SURCHARGED
15 minute summer	S4	12	48.243	1.343	130.7	1.9215	0.0000	SURCHARGED
15 minute summer	S5	12	48.205	1.375	333.7	1.5552	0.0000	SURCHARGED
15 minute summer	S6	12	47.960	1.197	372.3	1.7134	0.0000	SURCHARGED
15 minute summer	S7	12	47.583	1.050	418.3	1.1877	0.0000	SURCHARGED
120 minute winter	S9	114	47.066	1.916	150.8	6.6378	0.0000	SURCHARGED
120 minute winter	TANK A1	116	47.067	1.517	146.6	318.4814	0.0000	SURCHARGED
360 minute summer	S10	376	46.303	1.953	39.4	4.9713	0.0000	FLOOD RISK
15 minute summer	S12	10	46.273	0.073	24.2	0.1040	0.0000	OK
15 minute summer	S13	10	46.108	0.983	99.6	1.4061	0.0000	SURCHARGED
15 minute summer	S14	10	44.944	0.199	185.6	0.2843	0.0000	OK
1440 minute winter	S15	1380	44.549	0.649	10.2	0.9294	0.0000	SURCHARGED
1440 minute winter	S16	1380	44.549	1.039	16.0	1.4875	0.0000	SURCHARGED
1440 minute winter	HW	1380	44.549	1.279	12.0	1.8309	0.0000	FLOOD RISK
1440 minute winter	BASIN A	1380	44.549	1.349	37.2	414.8671	0.0000	FLOOD RISK
1440 minute winter	S17	1380	44.549	1.369	13.6	2.4193	0.0000	FLOOD RISK
15 minute winter	OUTFALL	51	43.173	0.073	13.4	0.0000	0.0000	OK
360 minute summer	TANK A2	376	46.303	1.913	23.0	213.7259	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	66.6	1.346	0.526	1.3054	
15 minute summer	S2	1.002	S5	150.8	2.421	0.765	3.8977	
15 minute summer	S3	2.000	S4	90.8	1.364	0.847	1.6625	
15 minute summer	S4	2.001	S5	125.6	0.793	0.622	2.8190	
15 minute summer	S5	1.003	S6	328.1	2.071	1.508	2.3299	
15 minute summer	S6	3.002	S7	366.8	2.315	1.065	3.2156	
15 minute summer	S7	3.001	S9	414.8	2.618	0.616	5.0802	
120 minute winter	S9	4.000	S10	26.8	0.640	0.058	6.1712	
120 minute winter	TANK A1	3.000	S9	-124.1	-0.783	-0.398	6.8254	
360 minute summer	S10	1.007_A	BASIN A	19.5	1.465	0.038	4.1090	
15 minute summer	S12	1.005	S14	24.0	2.218	0.213	0.2863	
15 minute summer	S13	5.000	S14	97.4	2.449	2.224	0.8566	
15 minute summer	S14	1.006	S15	184.6	2.291	0.387	3.1357	
1440 minute winter	S15	1.007	S16	10.2	1.016	0.022	2.9564	
1440 minute winter	S16	1.008	HW	12.0	0.497	0.030	2.5631	
1440 minute winter	HW	1.009	BASIN A	21.6	0.479	0.112	3.0895	
1440 minute winter	BASIN A	1.010	S17	13.6	0.142	0.089	1.4159	
1440 minute winter	S17	1.011	OUTFALL	13.4	1.116	0.231	0.0773	1038.2
360 minute summer	TANK A2	4.000_A	S10	-23.0	-0.376	-0.149	2.7322	

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S18	0.177	5.00	48.030	1350	515613.130	124974.827	1.500
S19	0.000	5.00	45.880	1200	515564.216	124913.119	2.170
TANK B2	0.175	5.00	45.660	1200	515562.583	124914.290	1.930
S20	0.085	5.00	45.640	1200	515568.836	124909.910	2.057
S22	0.033	5.00	46.420	2100	515584.629	124932.458	3.190
S23	0.079	5.00	45.110	1350	515637.231	124924.668	1.500
S24	0.006	5.00	44.820	1350	515622.895	124905.347	2.383
S25	0.038	5.00	44.630	1350	515616.886	124897.939	2.245
HW			43.700		515615.639	124883.489	1.460
Basin B	0.000	5.00	43.700		515613.893	124874.357	1.500
S26			43.700	1500	515616.892	124866.481	1.530
OUTFALL			42.797		515618.767	124862.882	0.647

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S18	S22	51.063	0.600	46.530	43.230	3.300	15.5	300	5.21	50.0
2.000	TANK B2	S19	2.009	0.600	43.730	43.710	0.020	100.5	225	5.03	50.0
3.000	S19	S20	9.473	0.600	43.710	43.658	0.052	182.2	225	5.19	50.0
2.001	S20	S22	27.529	0.600	43.583	43.230	0.353	78.0	300	5.45	50.0
1.001	S22	S24	46.896	0.600	43.230	42.437	0.793	59.1	300	5.83	50.0
5.000	S23	S24	24.059	0.600	43.610	42.437	1.173	20.5	300	5.12	50.0
1.002	S24	S25	9.538	0.600	42.437	42.385	0.052	183.4	300	5.97	50.0
1.003	S25	HW	14.504	0.600	42.385	42.240	0.145	100.0	300	6.12	50.0
1.004	HW	Basin B	9.384	0.600	42.240	42.200	0.040	234.6	300	6.27	50.0
1.005	Basin B	S26	8.345	0.600	42.200	42.170	0.030	278.2	300	6.42	50.0
1.006	S26	OUTFALL	4.058	0.600	42.170	42.150	0.020	202.9	150	6.52	50.0

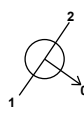
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	4.016	283.9	32.0	1.200	2.890	0.177	0.0	68	2.694
2.000	1.304	51.9	31.6	1.705	1.945	0.175	0.0	127	1.366
3.000	0.965	38.4	31.6	1.945	1.757	0.175	0.0	156	1.075
2.001	1.782	125.9	47.0	1.757	2.890	0.260	0.0	127	1.657
1.001	2.048	144.8	84.9	2.890	2.083	0.470	0.0	166	2.127
5.000	3.487	246.4	14.3	1.200	2.083	0.079	0.0	48	1.920
1.002	1.157	81.8	100.3	2.083	1.945	0.555	0.0	300	1.172
1.003	1.572	111.1	107.1	1.945	1.160	0.593	0.0	238	1.780
1.004	1.022	72.2	107.1	1.160	1.200	0.593	0.0	300	1.035
1.005	0.938	66.3	107.1	1.200	1.230	0.593	0.0	300	0.950
1.006	0.702	12.4	107.1	1.380	0.497	0.593	0.0	150	0.715

Pipeline Schedule

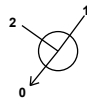
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	51.063	15.5	300	Circular	48.030	46.530	1.200	46.420	43.230	2.890
2.000	2.009	100.5	225	Circular	45.660	43.730	1.705	45.880	43.710	1.945
3.000	9.473	182.2	225	Circular	45.880	43.710	1.945	45.640	43.658	1.757
2.001	27.529	78.0	300	Circular	45.640	43.583	1.757	46.420	43.230	2.890
1.001	46.896	59.1	300	Circular	46.420	43.230	2.890	44.820	42.437	2.083
5.000	24.059	20.5	300	Circular	45.110	43.610	1.200	44.820	42.437	2.083
1.002	9.538	183.4	300	Circular	44.820	42.437	2.083	44.630	42.385	1.945
1.003	14.504	100.0	300	Circular	44.630	42.385	1.945	43.700	42.240	1.160
1.004	9.384	234.6	300	Circular	43.700	42.240	1.160	43.700	42.200	1.200
1.005	8.345	278.2	300	Circular	43.700	42.200	1.200	43.700	42.170	1.230
1.006	4.058	202.9	150	Circular	43.700	42.170	1.380	42.797	42.150	0.497

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S18	1350	Manhole	Adoptable	S22	2100	Manhole	Adoptable
2.000	TANK B2	1200	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.000	S19	1200	Manhole	Adoptable	S20	1200	Manhole	Adoptable
2.001	S20	1200	Manhole	Adoptable	S22	2100	Manhole	Adoptable
1.001	S22	2100	Manhole	Adoptable	S24	1350	Manhole	Adoptable
5.000	S23	1350	Manhole	Adoptable	S24	1350	Manhole	Adoptable
1.002	S24	1350	Manhole	Adoptable	S25	1350	Manhole	Adoptable
1.003	S25	1350	Manhole	Adoptable	HW		Junction	
1.004	HW		Junction		Basin B		Junction	
1.005	Basin B		Junction		S26	1500	Manhole	Adoptable
1.006	S26	1500	Manhole	Adoptable	OUTFALL		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S18	515613.130	124974.827	48.030	1.500	1350		0	1.000	46.530	300
S19	515564.216	124913.119	45.880	2.170	1200		1	2.000	43.710	225
							0	3.000	43.710	225
TANK B2	515562.583	124914.290	45.660	1.930	1200		0	2.000	43.730	225
S20	515568.836	124909.910	45.640	2.057	1200		1	3.000	43.658	225
							0	2.001	43.583	300
S22	515584.629	124932.458	46.420	3.190	2100		1	2.001	43.230	300
							2	1.000	43.230	300
							0	1.001	43.230	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S23	515637.231	124924.668	45.110	1.500	1350		0	5.000	43.610	300
S24	515622.895	124905.347	44.820	2.383	1350		1	5.000	42.437	300
							2	1.001	42.437	300
							0	1.002	42.437	300
S25	515616.886	124897.939	44.630	2.245	1350		1	1.002	42.385	300
HW	515615.639	124883.489	43.700	1.460			0	1.003	42.385	300
							1	1.003	42.240	300
Basin B	515613.893	124874.357	43.700	1.500			0	1.004	42.240	300
							1	1.004	42.200	300
S26	515616.892	124866.481	43.700	1.530	1500		0	1.005	42.200	300
							1	1.005	42.170	300
OUTFALL	515618.767	124862.882	42.797	0.647			0	1.006	42.170	150
							1	1.006	42.150	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	5	0
30	0	5	0
30	40	5	0
100	0	5	0
100	45	5	0

Node S26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	42.170	Product Number	CTL-SHE-0128-8200-1340-8200
Design Depth (m)	1.340	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.2	Min Node Diameter (mm)	1500

Node S20 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	43.583	Product Number	CTL-SHE-0055-1500-1200-1500
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.5	Min Node Diameter (mm)	1200

Node Basin B Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	42.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	43.7	0.0	0.400	106.2	0.0	0.800	204.6	0.0	1.200	302.0	0.0
0.100	58.3	0.0	0.500	123.4	0.0	0.900	228.1	0.0	1.300	327.7	0.0
0.200	73.7	0.0	0.600	159.3	0.0	1.000	252.2	0.0	1.400	354.0	0.0
0.300	89.6	0.0	0.700	181.7	0.0	1.100	276.8	0.0	1.500	380.9	0.0

Node TANK B2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	43.730
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	340.0	0.0	0.800	340.0	0.0	0.801	0.0	0.0

Results for 2 year +5% A Critical Storm Duration. Lowest mass balance: 99.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S18	10	46.600	0.070	34.7	0.1004	0.0000	OK
360 minute winter	S19	344	43.888	0.178	1.5	0.2018	0.0000	OK
360 minute winter	TANK B2	344	43.888	0.158	7.4	51.3576	0.0000	OK
15 minute summer	S20	9	43.891	0.308	16.7	0.3488	0.0000	SURCHARGED
15 minute summer	S22	11	43.339	0.109	42.2	0.3763	0.0000	OK
15 minute summer	S23	10	43.661	0.051	15.5	0.0724	0.0000	OK
15 minute summer	S24	11	42.643	0.206	57.3	0.2946	0.0000	OK
180 minute summer	S25	120	42.632	0.247	26.3	0.3534	0.0000	OK
180 minute summer	HW	120	42.631	0.391	25.6	0.0000	0.0000	SURCHARGED
180 minute summer	Basin B	120	42.631	0.431	24.8	33.0120	0.0000	SURCHARGED
180 minute summer	S26	120	42.630	0.460	8.3	0.8132	0.0000	SURCHARGED
180 minute summer	OUTFALL	120	42.233	0.083	8.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S18	1.000	S22	34.5	2.001	0.121	0.9005	
360 minute winter	S19	3.000	S20	-1.5	0.298	-0.040	0.3484	
360 minute winter	TANK B2	2.000	S19	-1.5	0.358	-0.028	0.0639	
15 minute summer	S20	2.001	S22	1.2	0.591	0.010	0.3461	
15 minute summer	S22	1.001	S24	41.3	1.131	0.285	1.7477	
15 minute summer	S23	5.000	S24	15.4	1.104	0.063	0.7118	
15 minute summer	S24	1.002	S25	57.3	1.193	0.700	0.4574	
180 minute summer	S25	1.003	HW	25.6	0.675	0.230	0.9607	
180 minute summer	HW	1.004	Basin B	24.8	0.962	0.344	0.6608	
180 minute summer	Basin B	1.005	S26	8.3	0.263	0.125	0.5876	
180 minute summer	S26	1.006	OUTFALL	8.2	0.773	0.660	0.0430	102.2

Results for 30 year +5% A Critical Storm Duration. Lowest mass balance: 99.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S18	10	46.645	0.115	90.4	0.1647	0.0000	OK
600 minute winter	S19	585	44.129	0.419	2.6	0.4740	0.0000	SURCHARGED
600 minute winter	TANK B2	585	44.129	0.399	10.4	129.3582	0.0000	SURCHARGED
600 minute winter	S20	585	44.129	0.546	3.8	0.6176	0.0000	SURCHARGED
15 minute summer	S22	12	43.572	0.342	107.9	1.1838	0.0000	SURCHARGED
15 minute summer	S23	10	43.691	0.081	40.3	0.1164	0.0000	OK
30 minute summer	S24	19	43.262	0.825	123.8	1.1809	0.0000	SURCHARGED
30 minute summer	S25	21	43.091	0.706	133.4	1.0101	0.0000	SURCHARGED
120 minute winter	HW	118	43.052	0.812	50.9	0.0000	0.0000	SURCHARGED
120 minute winter	Basin B	120	43.051	0.851	50.7	102.4581	0.0000	SURCHARGED
120 minute winter	S26	120	43.051	0.881	8.7	1.5565	0.0000	SURCHARGED
480 minute summer	OUTFALL	520	42.233	0.083	8.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S18	1.000	S22	90.0	2.562	0.317	2.3398	
600 minute winter	S19	3.000	S20	-2.6	0.269	-0.067	0.3768	
600 minute winter	TANK B2	2.000	S19	-2.5	0.369	-0.049	0.0799	
600 minute winter	S20	2.001	S22	1.2	0.564	0.010	0.1496	
15 minute summer	S22	1.001	S24	91.6	1.448	0.633	3.3024	
15 minute summer	S23	5.000	S24	40.2	1.296	0.163	1.0324	
30 minute summer	S24	1.002	S25	115.8	1.644	1.415	0.6717	
30 minute summer	S25	1.003	HW	131.3	1.865	1.182	1.0214	
120 minute winter	HW	1.004	Basin B	50.7	1.229	0.701	0.6608	
120 minute winter	Basin B	1.005	S26	8.7	0.383	0.132	0.5876	
120 minute winter	S26	1.006	OUTFALL	8.2	0.773	0.661	0.0430	156.2

Results for 30 year +40% CC +5% A Critical Storm Duration. Lowest mass balance: 99.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S18	10	46.669	0.139	126.5	0.1985	0.0000	OK
720 minute winter	S19	705	44.327	0.617	3.4	0.6976	0.0000	SURCHARGED
720 minute winter	TANK B2	705	44.327	0.597	12.9	193.4328	0.0000	SURCHARGED
720 minute winter	S20	705	44.327	0.744	4.6	0.8412	0.0000	SURCHARGED
15 minute summer	S22	12	44.342	1.112	153.4	3.8531	0.0000	SURCHARGED
15 minute summer	S23	12	43.782	0.172	56.5	0.2467	0.0000	OK
15 minute summer	S24	12	43.765	1.328	160.6	1.9003	0.0000	SURCHARGED
30 minute summer	S25	20	43.477	1.092	169.1	1.5626	0.0000	SURCHARGED
180 minute winter	HW	176	43.293	1.053	53.2	0.0000	0.0000	SURCHARGED
180 minute winter	Basin B	176	43.293	1.093	53.0	161.7968	0.0000	SURCHARGED
180 minute winter	S26	176	43.292	1.122	8.6	1.9834	0.0000	SURCHARGED
15 minute summer	OUTFALL	156	42.233	0.083	8.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S18	1.000	S22	126.0	2.743	0.444	2.6108	
720 minute winter	S19	3.000	S20	-3.4	0.243	-0.090	0.3768	
720 minute winter	TANK B2	2.000	S19	-3.4	0.356	-0.065	0.0799	
720 minute winter	S20	2.001	S22	1.2	0.588	0.010	0.1636	
15 minute summer	S22	1.001	S24	114.1	1.620	0.788	3.3024	
15 minute summer	S23	5.000	S24	56.3	1.350	0.229	1.3511	
15 minute summer	S24	1.002	S25	155.4	2.207	1.899	0.6717	
30 minute summer	S25	1.003	HW	167.6	2.380	1.508	1.0214	
180 minute winter	HW	1.004	Basin B	53.0	1.169	0.733	0.6608	
180 minute winter	Basin B	1.005	S26	8.6	0.375	0.130	0.5876	
180 minute winter	S26	1.006	OUTFALL	8.2	0.773	0.661	0.0430	169.3

Results for 100 year +5% A Critical Storm Duration. Lowest mass balance: 99.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S18	10	46.661	0.131	113.8	0.1870	0.0000	OK
720 minute winter	S19	705	44.252	0.542	2.9	0.6130	0.0000	SURCHARGED
720 minute winter	TANK B2	705	44.252	0.522	11.4	169.1940	0.0000	SURCHARGED
720 minute winter	S20	705	44.252	0.669	4.1	0.7566	0.0000	SURCHARGED
15 minute summer	S22	12	44.049	0.819	136.6	2.8376	0.0000	SURCHARGED
15 minute summer	S23	10	43.702	0.092	50.8	0.1311	0.0000	OK
30 minute summer	S24	20	43.594	1.157	140.8	1.6558	0.0000	SURCHARGED
30 minute summer	S25	20	43.351	0.966	155.7	1.3825	0.0000	SURCHARGED
180 minute winter	HW	176	43.210	0.970	47.6	0.0000	0.0000	SURCHARGED
180 minute winter	Basin B	176	43.210	1.009	47.4	139.6957	0.0000	SURCHARGED
180 minute winter	S26	176	43.209	1.039	8.6	1.8360	0.0000	SURCHARGED
960 minute winter	OUTFALL	480	42.233	0.083	8.2	0.0000	0.0000	OK

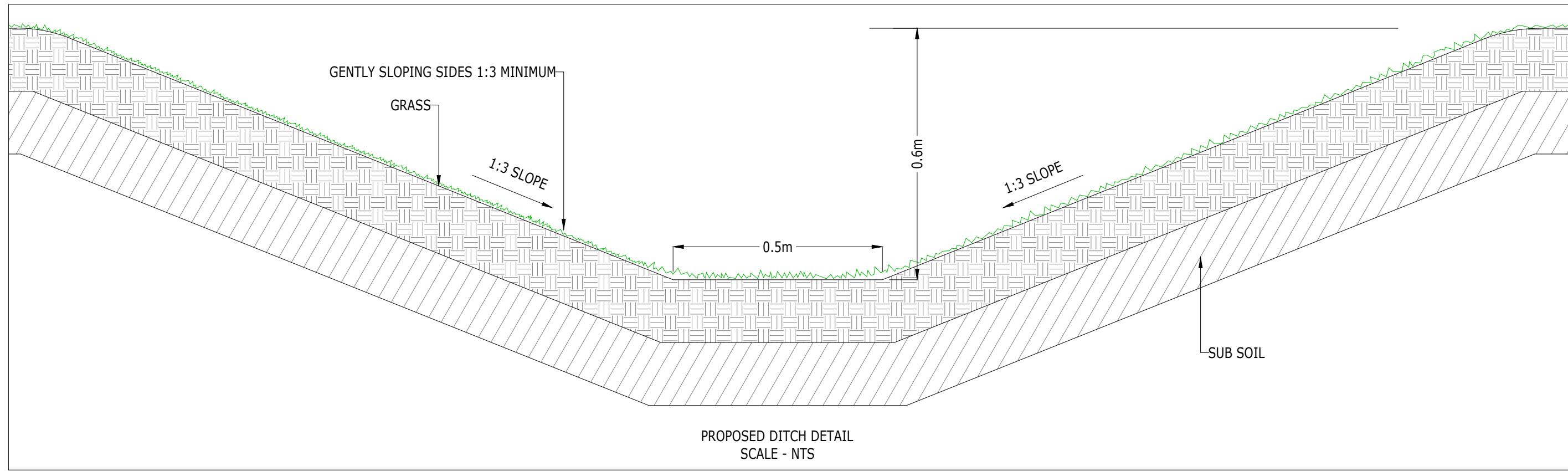
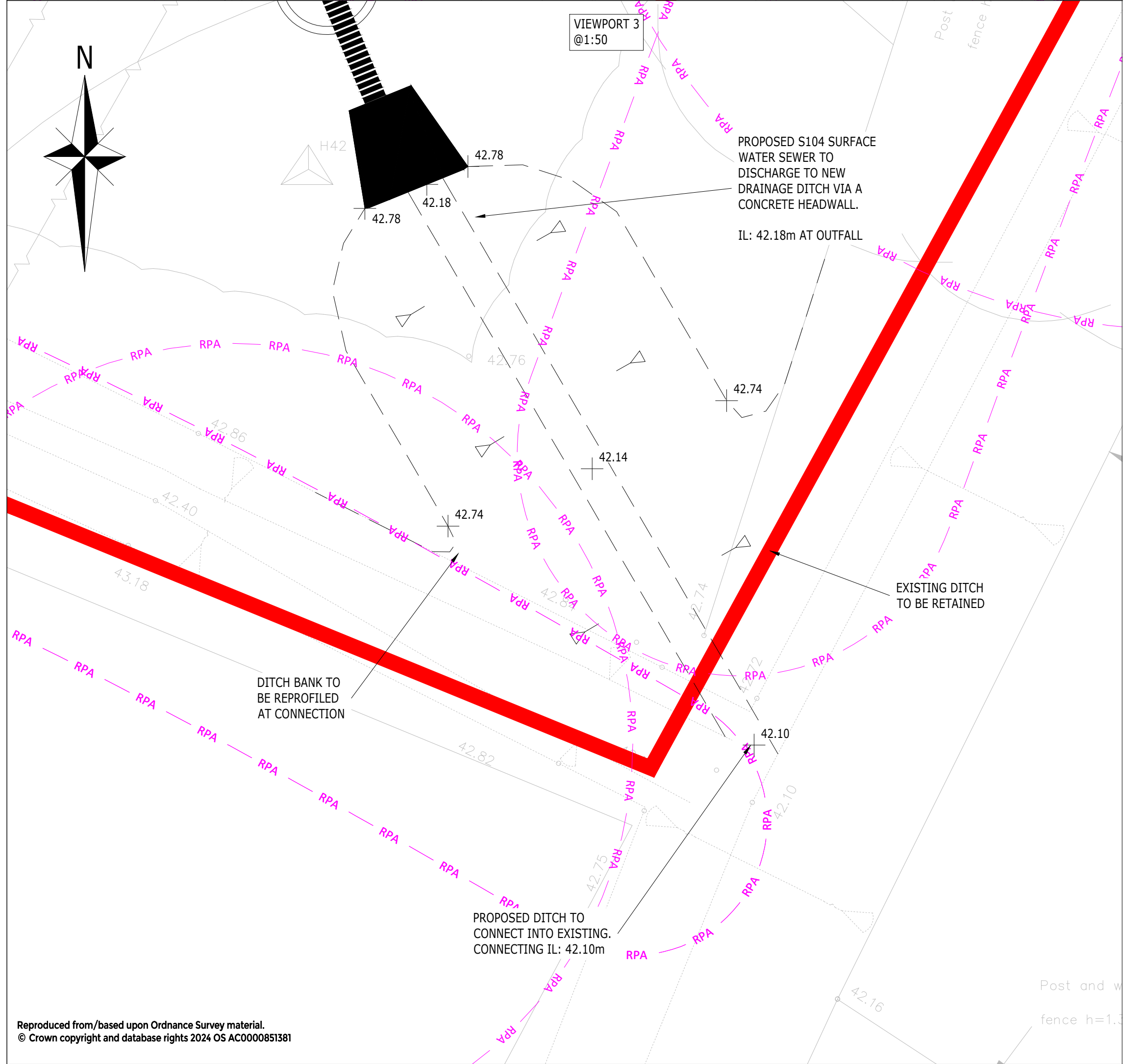
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S18	1.000	S22	113.3	2.684	0.399	2.5496	
720 minute winter	S19	3.000	S20	-2.9	0.272	-0.075	0.3768	
720 minute winter	TANK B2	2.000	S19	-2.9	0.374	-0.055	0.0799	
720 minute winter	S20	2.001	S22	1.2	0.581	0.010	0.1552	
15 minute summer	S22	1.001	S24	102.2	1.452	0.706	3.3024	
15 minute summer	S23	5.000	S24	50.6	1.339	0.205	1.0658	
30 minute summer	S24	1.002	S25	136.0	1.931	1.662	0.6717	
30 minute summer	S25	1.003	HW	153.6	2.182	1.383	1.0214	
180 minute winter	HW	1.004	Basin B	47.4	1.159	0.656	0.6608	
180 minute winter	Basin B	1.005	S26	8.6	0.354	0.130	0.5876	
180 minute winter	S26	1.006	OUTFALL	8.2	0.773	0.660	0.0430	170.5

Results for 100 year +45% CC +5% A Critical Storm Duration. Lowest mass balance: 99.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S18	11	46.714	0.184	165.0	0.2628	0.0000	OK
960 minute winter	S19	930	45.537	1.827	3.7	2.0668	0.0000	SURCHARGED
960 minute winter	TANK B2	930	45.537	1.807	13.5	260.6057	0.0000	FLOOD RISK
960 minute winter	S20	930	45.537	1.954	4.8	2.2104	0.0000	FLOOD RISK
15 minute summer	S22	12	45.369	2.139	201.7	7.4095	0.0000	SURCHARGED
15 minute summer	S23	12	44.563	0.953	73.6	1.3644	0.0000	SURCHARGED
15 minute summer	S24	12	44.488	2.051	200.4	2.9356	0.0000	SURCHARGED
30 minute summer	S25	20	44.005	1.620	218.3	2.3183	0.0000	SURCHARGED
240 minute winter	HW	232	43.490	1.250	55.4	0.0000	0.0000	FLOOD RISK
240 minute winter	Basin B	236	43.490	1.290	55.2	220.8367	0.0000	FLOOD RISK
240 minute winter	S26	236	43.489	1.319	8.5	2.3311	0.0000	FLOOD RISK
15 minute winter	OUTFALL	245	42.233	0.083	8.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S18	1.000	S22	161.5	2.678	0.569	2.9520	
960 minute winter	S19	3.000	S20	-3.7	0.242	-0.097	0.3768	
960 minute winter	TANK B2	2.000	S19	-3.7	0.342	-0.071	0.0799	
960 minute winter	S20	2.001	S22	1.9	0.622	0.015	0.1996	
15 minute summer	S22	1.001	S24	140.6	1.997	0.971	3.3024	
15 minute summer	S23	5.000	S24	65.5	1.376	0.266	1.6942	
15 minute summer	S24	1.002	S25	198.5	2.819	2.426	0.6717	
30 minute summer	S25	1.003	HW	215.2	3.056	1.937	1.0214	
240 minute winter	HW	1.004	Basin B	55.2	1.141	0.764	0.6608	
240 minute winter	Basin B	1.005	S26	8.5	0.335	0.129	0.5876	
240 minute winter	S26	1.006	OUTFALL	8.2	0.773	0.660	0.0430	204.5

Appendix J



-
- KEY PLAN
@1:5000

INFORMATION SUMMARY			
INFORMATION TYPE	SOURCE	REFERENCE	REVISION & DATE
SITE LAYOUT	DHA	102108-BEL-SL-01	RECEIVED 02.10.25
TOPOGRAPHICAL SURVEY	HOOK SURVEY	S19/7188/01-07	July 2019 Rev. C
ROOT PROTECTION AREA	KEEN CONSULTANTS	2463-KC-XX-Y TREE-TC	20.06.2025
EXISTING SEWER RECORDS	ARDENT CONSULTING	2108061. B-A CE-XX-XX-RP-C-0001	08.09.25 Rev. A

B	CONSTRUCTION DETAIL ISSUED TO DISCHARGE PLANNING CONDITION	DC	TR	BB	05.02.26
A	PRELIMINARY ISSUE	JTM	TR	BB	18.12.25
Rev	Description	Drn	Chk	App	Date
Purpose:		Status:			
FOR TECHNICAL APPROVAL		NOT YET APPROVED			

ARDENT CONSULTING ENGINEERS
AN EMPLOYEE OWNED COMPANY

Third Floor
The Hallmark Building
52-56 Leadenhall Street
London
EC3M 5JE

Text: 020 7680 4088
Web: www.ardent-ce.co.uk
E-mail: enquiries@ardent-ce.co.uk

smasT worksafe consultant
www.smasitd.com
MEMBER OF THE ASSOCIATION OF
SSIP SPECIALIST INSTITUTE OF
STRUCTURAL INSTEELWORKERS

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Certificate



Client				
BELLWAY HOMES LIMITED				
Project Title:				
WOODFORDS, SOUTHWATER				
Drawing Title:				
DITCH CONSTRUCTION DETAILS				
Drawn by JTM		Checked by DC	Approved by JM	Revision B
At Scale AS SHOWN		Date DEC 2025		
Drawing Number 2108061_B-ACE-XX-XX-DR-C-0551				

Appendix K



- NOTES
1. This tree survey information has been prepared for planning purposes only. Additional detail will be needed for foundation design.
 2. The original of this drawing was produced in colour - a monochrome copy should not be relied upon.
 3. Scale for planning purposes only.
 4. All dimensions to be checked on site.
 5. The copyright of this document resides with Keen Consultants unless assigned in writing by the company.
 6. Details shown on this drawing are devised with reference to BS5837:2012 Trees in relation to design, demolition and construction - Recommendations.
 7. Tree Preservation Order based on Horsham District Council Tree Preservation Order number TPO1436.
 8. Ancient Woodland (England) & Priority Habitat Inventory - Deciduous Woodland (England) based on information from MAGE website.
 9. Topographical survey based on Hook Survey Partnership job number 519/7188.
 10. Where trees were not identified on the topographical survey they have been plotted by eye.
 11. Canopy lines for groups are indicative only and should be confirmed by a topographical survey.
 12. Proposed layout based on A&A architecture Ltd Presentation Planning Layout drawing number 102108-BEL-SL-C1.
 13. Proposed drainage layout based on Arden Concept Drainage Strategy drawing 210801-B-A&A-XX-XX-C-0501_Drainage Strategy.
 14. Proposed levels based on Arden Concept Levels Strategy drawing number 210801-B-A&A-XX-XX-C-0501-A.

- KEY
- Existing site features
 - Proposed layout
 - Proposed drainage
 - Proposed levels
 - Trees retained (Green-coloured line indicates extent of canopy)
 - Trees for removal (Red-coloured line indicates extent of canopy)
 - 2.0m high barrier as detail in Figure 1 (Temporary, for the duration of works)
 - Minimum extent of no-dig construction. Actual deployment may be greater. As detail in Figure 3
 - Tree Preservation Order (TPO) woodland

KEY TO TREE SCHEDULE	Explanation
Column heading	Unique number corresponding with number on plan
Tree No.	English names
Species	Height in metres
Branch spread	Crown radius in metres to cardinal points of the compass
Stem dia.	All measurements conform to Annex C of BS 5837:2012
Stem dia.	Single stem - Stem diameter in centimetres measured at 1.5m above ground level
Stem dia.	Multi-stemmed tree with more than 5 stems - Average stem diameter and number of stems
Stem dia.	Multi-stemmed tree with more than 5 stems - Average stem diameter and number of stems
Stem dia.	Height in metres between the ground and underside of canopy
Stem dia.	Height from ground level to base of first major branch and the approximate direction of growth
Stem dia.	Height of first major branch and direction of growth
Stem dia.	Abbreviations as suffix to a dimension
Stem dia.	Age Class definitions:
Stem dia.	Y = Young S = Semi-mature E = Early mature M = Mature O = Over mature
Stem dia.	Category grading
Stem dia.	Summary of BS 5837:2012 categorisation
Stem dia.	1. Trees available for retention
Stem dia.	U = Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years
Stem dia.	2. Trees to be considered for retention:
Stem dia.	A1, 2 or 3 - trees of high quality (substantial contribution >10 m)
Stem dia.	B1, 2 or 3 - trees of moderate quality (significant contribution >10 m)
Stem dia.	C1, 2 or 3 - trees of low quality (but adequate, i.e. 10 m or more trees - will now planting can be established)
Stem dia.	Note: Useful estimated remaining contribution of the tree or tree group based on figures stated in BS5837:2012
Stem dia.	Work required to be undertaken to the trees to facilitate the construction or remediate a defect encountered during the survey
Stem dia.	Radius of minimum root protection area in metres calculated from section 4.6 and Annex D of BS5837:2012
Stem dia.	Total area of minimum root protection area extrapolated from root protection radius

Rev	Description	Date
A	Latest levels overlay	05.09.25
0	Preliminary issue	21.08.25

KEEN CONSULTANTS

The Studio, Timbers, Gables Road, Church Crookham, Fleet, Hampshire GU12 6QY
T 01252 450501
mail@keenconsultants.co.uk
keenconsultants.co.uk

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Registered office: The Studio, Timbers, Gables Road, Church Crookham, Fleet, Hampshire GU12 6QY

Client
BELLWAY HOMES LIMITED (SOUTH LONDON)

Project
WOODFORDS, SHIPLEY ROAD, SOUTHWATER, HORSHAM

Title
TREE PROTECTION PLAN

Date
AUG 2025

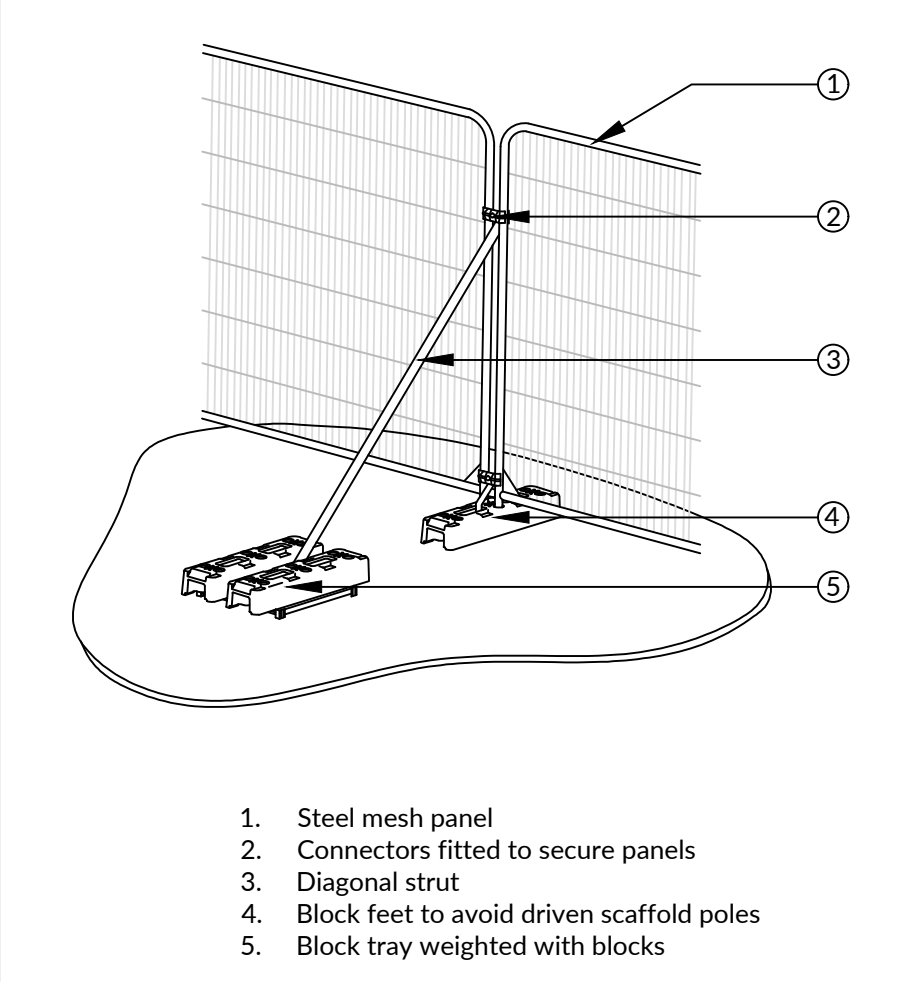
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Drawn by
ML

Checked by
JTK

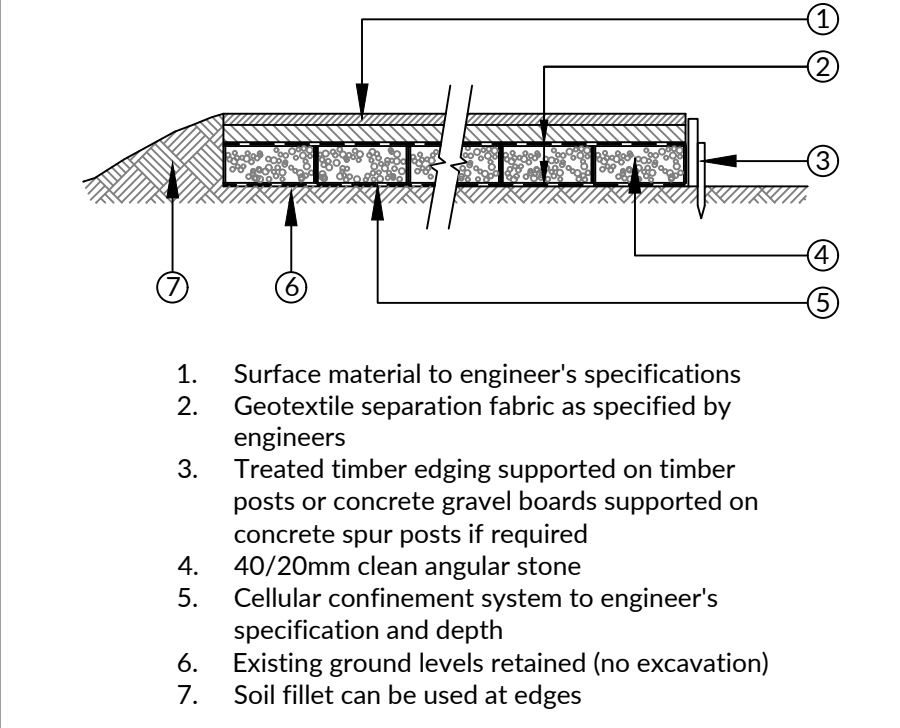
Drawing Number
2463-KC-XX-YTREE-TPP01RevA

Figure 1: Example of a protective barrier



1. Steel mesh panel
2. Connectors fitted to secure panels
3. Diagonal strut
4. Block feet to avoid driven scaffold poles
5. Block tray weighted with blocks

Figure 3: Typical detail of 'no-dig' surfacing



1. Surface material to engineer's specifications
2. Geotextile separation fabric as specified by engineers
3. Treated timber edging supported on timber posts or concrete gravel boards supported on concrete spur posts if required
4. 40/20mm clean angular stone
5. Cellular confinement system to engineer's specification and depth
6. Existing ground levels retained (no excavation)
7. Soil fill/cut can be used at edges

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Appendix L

Pollution hazard indices for different land use classifications (land use shaded grey applicable for the development)

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

Indicative SuDS mitigation indices for discharges to surface waters
(SuDS components shaded grey applicable to this development)

	Mitigation indices		
Type of SuDS component	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bio retention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Indicative SuDS mitigation indices for discharges to groundwater

(SuDS components shaded grey applicable to this development)

Characteristic of the material overlying the proposed infiltration surface, through which the runoff percolates	Mitigation indices		
	TSS	Metals	Hydro-carbons
A layer of dense vegetation underlain by a soil with good contaminant attenuation potential of at least 300mm in depth	0.6	0.5	0.6
A soil with good contaminant attenuation potential of at least 300mm in depth	0.4	0.3	0.3
Infiltration trench underlain by a soil with good contaminant attenuation potential of at least 300mm in depth	0.4	0.4	0.4
Constructed permeable paving underlain by a soil with a good contaminant attenuation potential of at least 300mm in depth	0.7	0.6	0.7
Bio retention underlain by a soil with good contaminant attenuation potential of at least 300mm in depth	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area.		

Indicative SuDS mitigation indices for discharges to surface waters – Catchment A

For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day			
	Required mitigation indices		
Source	TSS	Metals	Hydrocarbons
Low	0.5	0.4	0.4
Proposed Drainage			
Detention Basin	0.5	0.5	0.6
Swale	0.5	0.6	0.6
Total	$0.5 + (0.5 \times 0.5)$ =0.75	$0.5 + (0.6 \times 0.5)$ =0.8	$0.6 + (0.6 \times 0.5)$ =0.9
Check	+0.25	+0.40	+0.50

Total SuDS mitigation index = mitigation index₁ + (0.5 x mitigation index₂) + (0.5 x mitigation index₃)....

Indicative SuDS mitigation indices for discharges to surface waters – Catchment B

For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day			
	Required mitigation indices		
Source	TSS	Metals	Hydrocarbons
Low	0.5	0.4	0.4
Proposed Drainage			
Detention Basin	0.5	0.5	0.6
Swale	0.5	0.6	0.6
Total	$0.5 + (0.5 \times 0.5)$ =0.75	$0.5 + (0.6 \times 0.5)$ =0.8	$0.6 + (0.6 \times 0.5)$ =0.9
Check	+0.25	+0.40	+0.50

Total SuDS mitigation index = mitigation index₁ + (0.5 x mitigation index₂) + (0.5 x mitigation index₃)....

Appendix M

SuDS Management & Maintenance Strategy**Maintenance and Management**

The Sustainable Drainage Systems (SuDS) within individual plots will be privately maintained by the respective homeowners, while the connecting pipework is intended to be adopted and maintained by the water authority. As construction has not yet commenced, there is currently no formal mechanism in place to confirm or enforce homeowner maintenance responsibilities. The developer will ensure that the necessary maintenance obligations for the SuDS are clearly set out in the property deeds or relevant homeowner guidance to support long-term functionality. Coordination with the water authority will also be undertaken to ensure that responsibilities between private and adoptable infrastructure are clearly delineated and do not result in gaps in maintenance.

The indicative maintenance requirements for each proposed SuDS component is given below. Taken from CIRIA report C753 "The SuDS Manual".

Drainage Pipes

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove sediment and debris from inspection chambers and hydrobrake chambers	Annually
	Cleaning of gutters and any filters on downpipes	Annually
	Remove any root ingress	As required
Occasional Maintenance	CCTV survey of drains to check alignment, cracking and joint displacement	10 year intervals

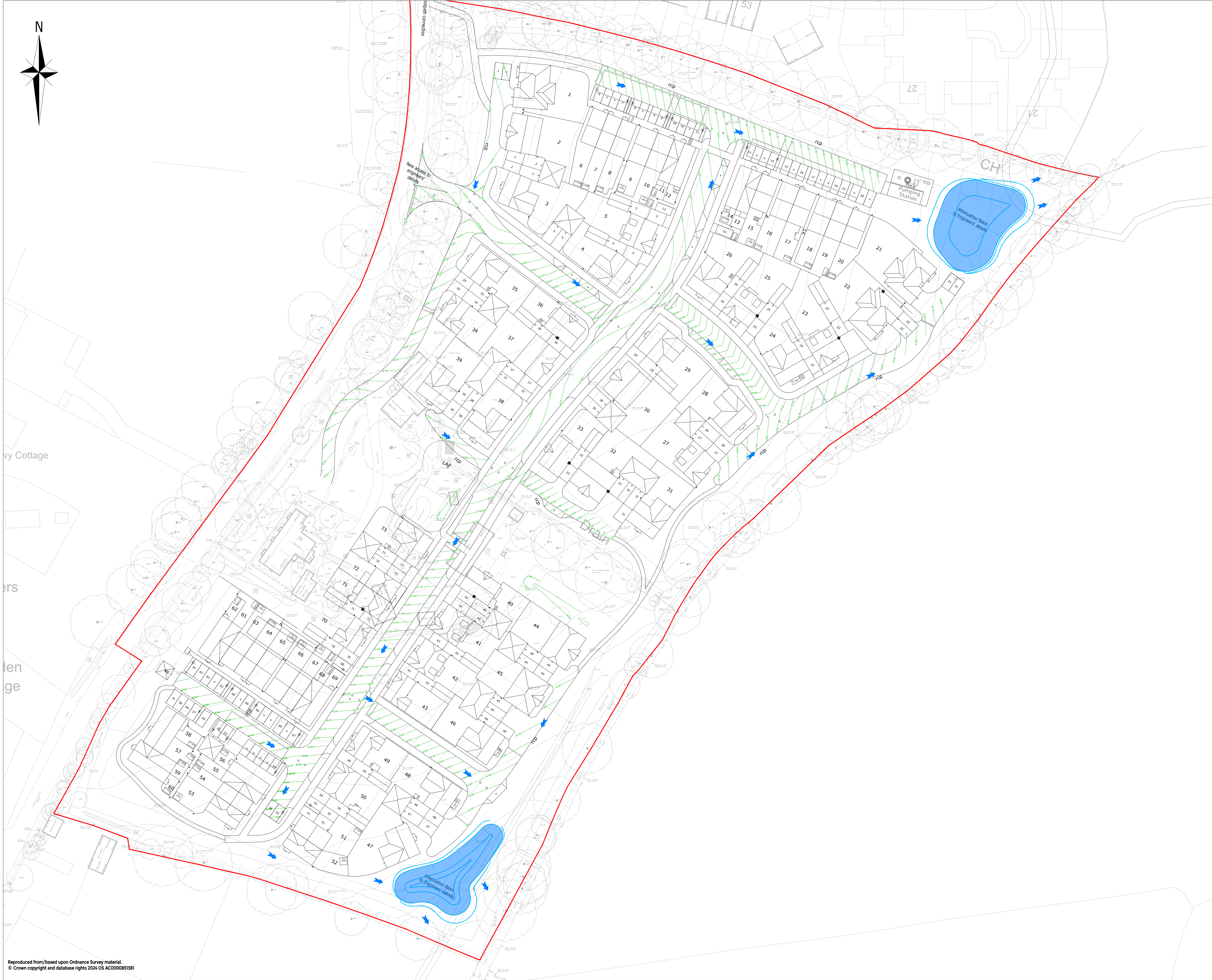
Basins

Maintenance Period	Maintenance Task	Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut the grass – to retain grass height within specified design range	Monthly (during growing season) or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional Maintenance	Reseed areas of poor vegetation growth; alter plant types to better suit conditions, if required	As required or if bare soil is exposed over > 10% of the filter strip area
Remedial Actions	Repair erosion or other damage by re-turfing or reseed	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

SuDS Management & Maintenance Strategy**Attenuation Tank**

Maintenance Period	Maintenance Task	Frequency
Maintenance Work	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risk to performance)	Monthly
	Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as required
Remedial Work	Repair/rehabilitate inlets, outlets, overflows and vents	As required.
Monitoring	Inspect/check all inlets, outlets, vents, and overflows to ensure that they are in good condition and operating as designed	Annually.
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required.

Appendix N



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 - PROPOSED TREES WITHIN SITE LAYOUT TO HAVE APPROPRIATE SPACING/SURROUNDING NEAR ATTENUATION TANKS.

- KEY
- SITE BOUNDARY
 - PROPOSED BASIN
 - FLOOD EXCEEDANCE ROUTE ARROWS
 - PROPOSED CONTOURS (100mm)

INFORMATION SUMMARY

INFORMATION TYPE	SOURCE	REFERENCE	REVISION & DATE
SITE LAYOUT	DHA	102108-BEL-SL-01	20.03.25 Rev. E
TOPOGRAPHICAL SURVEY	HOOK SURVEY	S19/71188/01-07	July 2019 Rev. C
ROOT PROTECTION AREA	KEEN CONSULTANTS	2463-KC-XX-Y TREE-TC	20.06.2025
EXISTING SEWER RECORDS	ARDENT CONSULTING	2108061_B-A CE-XX-XX-RP-C-0001	08.09.25 Rev. A



B	UPDATED TO REVISED LAYOUT	DC	DC	JM	30.03.26
A	PRELIMINARY ISSUE	PM	DC	JM	14.01.26
Rev	Description	Drn	Chk	App	Date
Purpose:	PRELIMINARY	Status:	NOT YET APPROVED		

ARDENT CONSULTING ENGINEERS
AN EMPLOYEE OWNED COMPANY

Third Floor
The Hallmark Building
52-56 Leadenhall Street
London
EC3M 5JE
Tel: 020 7680 4088
Web: www.ardent-ce.co.uk
E-mail: enquiries@ardent-ce.co.uk



Client

BELLWAY HOMES LIMITED

Project Title:

WOODFORDS, SOUTHWATER

Drawing Title:

SURFACE WATER EXCEEDANCE PLAN

Drawn by PM	Checked by DC	Approved by JM	Revision B
A1 Scale 1:500@A1		Date JAN 2026	
Drawing Number 2108061_B-ACE-XX-XX-DR-C-0510			