

Appendix D. Southern Water Asset Location Plans and Correspondence

99633



SZ9499SE

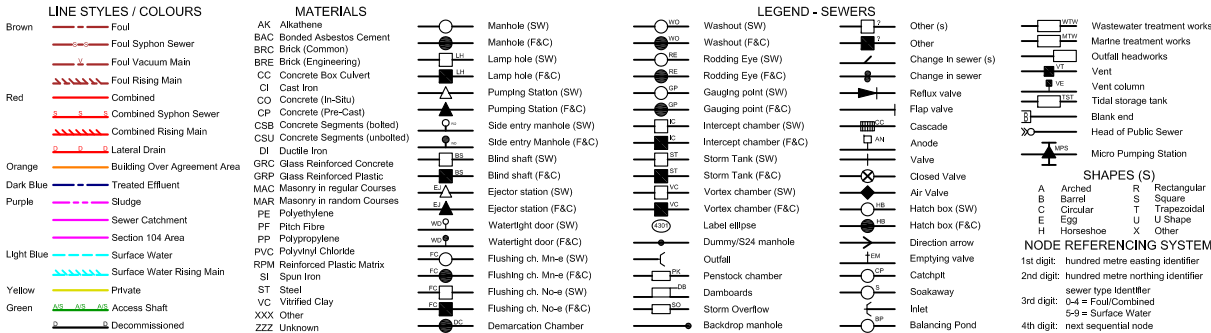


Southern
Water

ARUN DISTRICT COUNCIL BR/307/20/PL
405400

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
0451X	5.25	4	150	CP	CIRC	510AX			600	DI	CIRC	8351X	2.81	1.36	300	VC	CIRC						
0501X	4.86	-0.4	300	VC	CIRC	5150Y	2.939	0.112	750	CP	CIRC	8352X	2.91	1.21	300	VC	CIRC						
0502X	4.93	0.1	225	VC	CIRC	5251X	1.47	-0.66	900	CP	CIRC	8401X	2.27	-1.26	300	VC	CIRC						
050DX			300	VC	CIRC	5252X	2.31	-0.54	900	CP	CIRC	8402X	2.49	-1.27	300	VC	CIRC						
0551X	4.92	3.33	225	CP	CIRC	5253X	1.478	-0.412	900	CP	CIRC	8403X	2.8	-1.37	300	VC	CIRC						
0552X	4.93	3.56	225	CP	CIRC	5401X	2.27	0.82	150	VC	CIRC	8404X	3.25	-1.4	300	VC	CIRC						
0602X	4.91	-0.27	300	VC	CIRC	5451X	2.04	0.71	300	VC	CIRC	8405X	2.93	-1.75	525	CI	CIRC						
0653X	4.89	3.28	225	CP	CIRC	5501X	1.81	-2.24	525	CI	CIRC	8406X	3.99	3.05	150	VC	CIRC						
1005X	2.62	1.59	150	VC	CIRC	5501Y	1.81	-0.45	525	CI	CIRC	8407X	4.13	3.11	225	VC	CIRC						
1401X	5.14	-0.16	525	CI	CIRC	5502X	1.47	-0.46	525	CI	CIRC	8408X	2.94	0.08	300	CP	CIRC						
1402X	5.1	-0.01	525	CI	CIRC	5503X	2.04		300	CI	CIRC	840BX			175	VC	CIRC						
2051X	4.55	0.94	600	CP	CIRC	5503Y	2.04		375	CI	CIRC	841DX	1.52	1.52	150	VC	CIRC						
2052X	2.5	1.22	600	CP	CIRC	5504X	1.65	-2.49	OTHER	CI	CIRC	842BX			150	VC	CIRC						
2053X	2.45	0.85	600	CP	CIRC	5505X	3		750	CP	CIRC	842DX			UNKN	UNKN	CIRC						
2101X	2.63	1.59	150	VC	CIRC	5506X			UNKN	UNKN	CIRC	843DX			UNKN	UNKN	CIRC						
2151X	2.63	1.73	300	VC	CIRC	5508X			100	VC	CIRC	844DX			UNKN	UNKN	CIRC						
2152X	1.86	0.22	525	CP	CIRC	551PX	3.05		UNKN	UNKN	CIRC	8451X	2.54	1.8	225	CP	CIRC						
2153X	2.16	0.34	525	CP	CIRC	620WX			600	DI	CIRC	8452X	2.56	1.89	150	VC	CIRC						
2501X	4.07	-0.37	525	CI	CIRC	6251X	2.61	0.01	675	CP	CIRC	8453X	2.84	2.19	150	VC	CIRC						
2502X	4.69	-0.27	525	CI	CIRC	6252X	2.47		675	CP	CIRC	8454X	2.61	2.01	150	VC	CIRC						
255DX			300	VC	CIRC	6301X	2.56	0.29	150	VC	CIRC	8501X	2.37	-1.14	300	VC	CIRC						
3101X	1.86	-0.57	225	VC	CIRC	6401X	2.01	-1.97	525	CI	CIRC	8502X	2.06	-1.16	300	VC	CIRC						
3102X		-0.51	375	CP	CIRC	6501X	1.81	0.24	175	VC	CIRC	851DX	-0.91		225	VC	CIRC						
3152X	1.72	0.14	525	CP	CIRC	6502X	1.82	0.26	175	VC	CIRC	852DX			UNKN	UNKN	CIRC						
3153X	2.34	0.6	600	CP	CIRC	6503X	1.8	0.38	175	VC	CIRC	8551X	2.77		225	VC	CIRC						
3154X	2.45	0.8	600	CP	CIRC	6504X	1.85	0.71	175	VC	CIRC	8552X	2.15	1.57	150	VC	CIRC						
3155X	1.9	0.18	675	CP	CIRC	6551X	2.09	0.72	225	CP	CIRC	8553X	2.62	1.23	300	CP	CIRC						
3201X	1.85	-0.88	375	CP	CIRC	6552X	1.84	0.66	225	CP	CIRC	8554X	2.03	0.67	300	CP	CIRC						
3205X			375	CP	CIRC	6553X	1.8	0.14	225	CI	CIRC	8555X	1.99	0.62	150	VC	CIRC						
3206X			375	CP	CIRC	7201X	3	0.38	300	CP	CIRC	8556X	1.92	0.19	150	VC	CIRC						
3207X			375	CP	CIRC	7202X	3.11	1.35	150	VC	CIRC	8557X	1.95	0.63	300	VC	CIRC						
3208X			375	CP	CIRC	7203X	3.32	0.45	300	CP	CIRC	8603X	3.02	1.78	100	VC	CIRC						
3251X	1.76	-0.12	675	CP	CIRC	7204X	3.12	0.8	150	VC	CIRC	8604X	3.17	1.97	100	VC	CIRC						
3252X	1.91	0.1	675	CP	CIRC	7205X	2.38	0.68	300	CP	CIRC	8605X	3.24	2.33	100	VC	CIRC						
3253X	1.91	0.06	675	CP	CIRC	7206X			100	VC	CIRC	8654X	3.18	1.76	225	VC	CIRC						
3301X	1.94	-0.53	300	CP	CIRC	7251X	3.07	1.1	300	VC	CIRC	8655X	2.91	1.79	225	VC	CIRC						
3302X	1.97	-1.1	375	CP	CIRC	7252X	3.1	0.9	675	CP	CIRC	9301X	4.68	3.09	150	VC	CIRC						
3401X	2.59	-0.55	450	CI	CIRC	7253X	2.39	0.06	675	CP	CIRC	9401X	4.46	3.03	150	VC	CIRC						
3402X	2.53	-1.75	750	CI	CIRC	7401X	1.88	-1.8	525	CI	CIRC	9402X	4.93	3.19	150	VC	CIRC						
3403X	2.96	-1.6	750	CI	CIRC	7402X	2.1	-0.16	175	VC	CIRC	941DX			UNKN	UNKN	CIRC						
3404X	2.84	-0.49	600	CI	CIRC	7451X	2.07	0.87	225	CP	CIRC	9451X	4.39	3.1	150	VC	CIRC						
3405X	2.45	-1.36	375	CP	CIRC	7452X	2.3	0.98	225	CP	CIRC	9501X	4.05	-0.9	300	VC	CIRC						
3452X	2.68	1.37	OTHER	VC	CIRC	7501X	1.92	-0.9	225	VC	CIRC	9502X	4.6	-0.67	300	VC	CIRC						
3501Y	3.415	-0.105	450	CP	CIRC	7502X	2.12	0.07	175	VC	CIRC	9503X	4.31	-0.79	300	VC	CIRC						
3502X	2.942	-0.286	600	CI	CIRC	7551X	1.78	0.34	300	VC	CIRC	9504X	4.34	2.81	150	BAC	CIRC						
3552X	3.51	2.43	300	VC	CIRC	7552X	1.85	0.73	150	VC	CIRC	950DX			UNKN	UNKN	CIRC						
3553X	2.99	1.86	300	VC	CIRC	7553X	2.1	0.83	150	VC	CIRC	951DX			UNKN	UNKN	CIRC						
3604X	2.22	0.021	450	CP	CIRC	7651X	2.14	0.93	150	VC	CIRC	952DX			300	VC	CIRC						
3605X	2.44	-0.22	600	CI	CIRC	8201X	3.91	2.18	150	VC	CIRC	9551X	4.66	3.21	225	CP	CIRC						
4151X	2.69		600	CP	CIRC	8202X			150	VC	CIRC	9552X	3.98	2.78	225	VC	CIRC						
4152X	2.62	0.12	600	CP	CIRC	8203X			150	VC	CIRC	9603X	4.12	3.02	150	BAC	CIRC						
4153X	2.56	0.55	600	CP	CIRC	8204X			100	VC	CIRC												
4154X	3.265	0.006	750	CP	CIRC	8205X			100	VC	CIRC												
4251X	1.94		675	CP	CIRC	8206X			UNKN	UNKN	CIRC												
4252X	1.84	-0.13	675	CP	CIRC	820DX			UNKN	UNKN	CIRC												
4253X	1.8	-0.17	675	CP	CIRC	821DX			150	VC	CIRC												
4254X	1.91	-0.25	675	CP	CIRC	822DX			150	VC	CIRC												
4255X	2.21	-0.215	900	CP	CIRC	823DX			UNKN	UNKN	CIRC												
4256X	1.607	-0.322	900	CP	CIRC	824DX			UNKN	UNKN	CIRC												
4401X	2.04		750	CI	CIRC	82ADX			UNKN	UNKN	CIRC												
4402X	1.99	-1.98	750	CI	CIRC	8301X	2.82	0.13	300	CP	CIRC												
4451X	2.03		UNKN	UNKN	CIRC	8302X	2.96	1.09	150	VC	CIRC												
4452X	2.3		300	VC	CIRC	8303X	3.01	0.27	300	CP	CIRC												
4453X	2.24		225	VC	CIRC	8304X	2.92	1.29	150	VC	CIRC												
4601X	2.31	-0.01	450	CI	CIRC	8309X	2.83	1.26	150	VC	CIRC												



Appendix E. Permissible Runoff Rate Calculations

URS Infrastructure & Environment UK Ltd		Page 1
Scott House Alencon Link Basingstoke RG21 7PP		
Date 31/08/2016 18:39	Designed by 34735jr	
File	Checked by	
XP Solutions		Source Control 2015.1
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 1 SAAR (mm) 700 Urban 0.750 Area (ha) 2.437 Soil 0.400 Region Number Region 7 Results l/s QBAR Rural 8.3 QBAR Urban 23.5 Q1 year 20.0 Q1 year 20.0 Q30 years 40.8 Q100 years 47.4		
©1982-2015 XP Solutions		

Appendix F. Surface Water Drainage Strategy Drawings and Calculations

URS Infrastructure & Environment UK Ltd		Page 1
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions		Network 2014.1.1

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
S1.000	12.373	0.124	99.8	0.072	4.00	0.0	0.600	o	150
S1.001	12.373	0.082	150.0	0.000	0.00	0.0	0.600	o	150
S1.002	5.671	0.038	149.2	0.033	0.00	0.0	0.600	o	150
S1.003	5.671	0.038	149.2	0.000	0.00	0.0	0.600	o	150
S1.004	28.792	0.169	170.0	0.173	0.00	0.0	0.600	o	225
S1.005	28.792	0.170	169.4	0.000	0.00	0.0	0.600	o	225
S1.006	18.174	0.107	170.0	0.000	0.00	0.0	0.600	o	225
S1.007	22.107	0.092	240.0	0.177	0.00	0.0	0.600	o	300
S1.008	22.107	0.092	240.0	0.000	0.00	0.0	0.600	o	300
S1.009	17.254	0.072	240.0	0.177	0.00	0.0	0.600	o	300
S1.010	17.254	0.072	239.6	0.000	0.00	0.0	0.600	o	300
S2.000	51.757	0.518	99.9	0.050	4.00	0.0	0.600	o	225
S2.001	35.911	0.239	150.3	0.050	0.00	0.0	0.600	o	225
S3.000	37.800	0.252	150.0	0.035	4.00	0.0	0.600	o	150
S4.000	49.601	0.207	239.6	0.280	4.00	0.0	0.600	o	300
S4.001	24.801	0.103	240.8	0.144	0.00	0.0	0.600	o	300
S4.002	24.801	3.822	6.5	0.000	0.00	0.0	0.600	o	300
S2.002	9.650	0.054	180.0	0.000	0.00	0.0	0.600	o	300
S2.003	10.132	0.032	321.0	0.068	0.00	0.0	0.600	o	375
S2.004	10.132	0.032	321.0	0.000	0.00	0.0	0.600	o	375
S2.005	37.307	0.115	324.4	0.068	0.00	0.0	0.600	o	375

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	2.700	0.072	0.0	1.01	17.8
S1.001	2.576	0.072	0.0	0.82	14.5
S1.002	2.494	0.105	0.0	0.82	14.5
S1.003	2.456	0.105	0.0	0.82	14.5
S1.004	2.343	0.278	0.0	1.00	39.8
S1.005	2.174	0.278	0.0	1.00	39.8
S1.006	2.004	0.278	0.0	1.00	39.8
S1.007	1.823	0.455	0.0	1.01	71.4
S1.008	1.730	0.455	0.0	1.01	71.4
S1.009	1.638	0.632	0.0	1.01	71.4
S1.010	1.566	0.632	0.0	1.01	71.5
S2.000	2.625	0.050	0.0	1.31	52.0
S2.001	2.107	0.100	0.0	1.06	42.3
S3.000	2.200	0.035	0.0	0.82	14.5
S4.000	6.000	0.280	0.0	1.01	71.5
S4.001	5.793	0.424	0.0	1.01	71.3
S4.002	5.690	0.424	0.0	6.21	439.0
S2.002	1.793	0.559	0.0	1.17	82.6
S2.003	1.664	0.627	0.0	1.01	111.1
S2.004	1.632	0.627	0.0	1.01	111.1
S2.005	1.600	0.695	0.0	1.00	110.5

URS Infrastructure & Environment UK Ltd		Page 2
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
S5.000	23.781	0.160	148.6	0.177	4.00	0.0	0.600	o	300
S2.006	13.962	0.048	290.0	0.000	0.00	0.0	0.600	o	375
S2.007	13.962	0.048	290.0	0.000	0.00	0.0	0.600	o	375
S1.011	6.886	0.024	290.0	0.000	0.00	0.0	0.600	o	375
S1.012	6.886	0.024	290.0	0.000	0.00	0.0	0.600	o	375

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S5.000	1.850	0.177	0.0	1.29	91.0
S2.006	1.485	0.872	0.0	1.06	116.9
S2.007	1.437	0.872	0.0	1.06	116.9
S1.011	1.389	1.504	0.0	1.06	116.9
S1.012	1.365	1.504	0.0	1.06	116.9

URS Infrastructure & Environment UK Ltd		Page 3
Scott House	Butlins Splash	
Alencon Link	Surface Water drainage	
Basingstoke RG21 7PP	surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdr (mm)
S1	3.500	0.800	Open Manhole	1200	S1.000	2.700	150				
Sperm pave 1	3.500	0.924	Open Manhole	1200	S1.001	2.576	150	S1.000	2.576	150	
S3	3.500	1.006	Open Manhole	1200	S1.002	2.494	150	S1.001	2.494	150	
Sperm pave 2	3.500	1.044	Open Manhole	1200	S1.003	2.456	150	S1.002	2.456	150	
S3	3.500	1.157	Open Manhole	1200	S1.004	2.343	225	S1.003	2.418	150	
Sperm pave 3	3.500	1.326	Open Manhole	1200	S1.005	2.174	225	S1.004	2.174	225	
S4	3.500	1.496	Open Manhole	1200	S1.006	2.004	225	S1.005	2.004	225	
S5	3.000	1.177	Open Manhole	1200	S1.007	1.823	300	S1.006	1.898	225	
STank 2	3.000	1.270	Open Manhole	1200	S1.008	1.730	300	S1.007	1.730	300	
S7	2.900	1.262	Open Manhole	1200	S1.009	1.638	300	S1.008	1.638	300	
STank 3	2.900	1.334	Open Manhole	1200	S1.010	1.566	300	S1.009	1.566	300	
S9	3.500	0.875	Open Manhole	1200	S2.000	2.625	225				
S10	3.000	0.893	Open Manhole	1200	S2.001	2.107	225	S2.000	2.107	225	
S11	3.000	0.800	Open Manhole	1200	S3.000	2.200	150				
SDeck 1	7.000	1.000	Open Manhole	1200	S4.000	6.000	300				
SDeck 2	7.000	1.207	Open Manhole	1200	S4.001	5.793	300	S4.000	5.793	300	
SDeck 3	7.000	1.310	Open Manhole	1200	S4.002	5.690	300	S4.001	5.690	300	
S11	3.000	1.207	Open Manhole	1200	S2.002	1.793	300	S2.001	1.868	225	
								S3.000	1.948	150	
								S4.002	1.868	300	
S12	3.000	1.336	Open Manhole	1350	S2.003	1.664	375	S2.002	1.739	300	
S20	2.900	1.268	Open Manhole	1200	S2.004	1.632	375	S2.003	1.632	375	
S13	2.800	1.200	Open Manhole	1350	S2.005	1.600	375	S2.004	1.600	375	
S16	3.000	1.150	Open Manhole	1200	S5.000	1.850	300				
S16	2.750	1.265	Open Manhole	1350	S2.006	1.485	375	S2.005	1.485	375	
								S5.000	1.690	300	
STank 4	2.700	1.263	Open Manhole	1350	S2.007	1.437	375	S2.006	1.437	375	
SMain Hydrobrake	2.700	1.311	Open Manhole	1350	S1.011	1.389	375	S1.010	1.494	300	
								S2.007	1.389	375	
SNon return valve	2.600	1.235	Open Manhole	1350	S1.012	1.365	375	S1.011	1.365	375	
SOutfall	2.500	1.159	Open Manhole	375		OUTFALL		S1.012	1.341	375	

URS Infrastructure & Environment UK Ltd		Page 4
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S1	3.500	2.700	0.650	Open Manhole	1200
S1.001	o	150	Sperm pave 1	3.500	2.576	0.774	Open Manhole	1200
S1.002	o	150	S3	3.500	2.494	0.856	Open Manhole	1200
S1.003	o	150	Sperm pave 2	3.500	2.456	0.894	Open Manhole	1200
S1.004	o	225	S3	3.500	2.343	0.932	Open Manhole	1200
S1.005	o	225	Sperm pave 3	3.500	2.174	1.101	Open Manhole	1200
S1.006	o	225	S4	3.500	2.004	1.271	Open Manhole	1200
S1.007	o	300	S5	3.000	1.823	0.877	Open Manhole	1200
S1.008	o	300	STank 2	3.000	1.730	0.970	Open Manhole	1200
S1.009	o	300	S7	2.900	1.638	0.962	Open Manhole	1200
S1.010	o	300	STank 3	2.900	1.566	1.034	Open Manhole	1200
S2.000	o	225	S9	3.500	2.625	0.650	Open Manhole	1200
S2.001	o	225	S10	3.000	2.107	0.668	Open Manhole	1200
S3.000	o	150	S11	3.000	2.200	0.650	Open Manhole	1200
S4.000	o	300	SDeck 1	7.000	6.000	0.700	Open Manhole	1200
S4.001	o	300	SDeck 2	7.000	5.793	0.907	Open Manhole	1200
S4.002	o	300	SDeck 3	7.000	5.690	1.010	Open Manhole	1200
S2.002	o	300	S11	3.000	1.793	0.907	Open Manhole	1200
S2.003	o	375	S12	3.000	1.664	0.961	Open Manhole	1350
S2.004	o	375	S20	2.900	1.632	0.893	Open Manhole	1200
S2.005	o	375	S13	2.800	1.600	0.825	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	12.373	99.8	Sperm pave 1	3.500	2.576	0.774	Open Manhole	1200
S1.001	12.373	150.0	S3	3.500	2.494	0.856	Open Manhole	1200
S1.002	5.671	149.2	Sperm pave 2	3.500	2.456	0.894	Open Manhole	1200
S1.003	5.671	149.2	S3	3.500	2.418	0.932	Open Manhole	1200
S1.004	28.792	170.0	Sperm pave 3	3.500	2.174	1.101	Open Manhole	1200
S1.005	28.792	169.4	S4	3.500	2.004	1.271	Open Manhole	1200
S1.006	18.174	170.0	S5	3.000	1.898	0.877	Open Manhole	1200
S1.007	22.107	240.0	STank 2	3.000	1.730	0.970	Open Manhole	1200
S1.008	22.107	240.0	S7	2.900	1.638	0.962	Open Manhole	1200
S1.009	17.254	240.0	STank 3	2.900	1.566	1.034	Open Manhole	1200
S1.010	17.254	239.6	SMain Hydrobrake	2.700	1.494	0.906	Open Manhole	1350
S2.000	51.757	99.9	S10	3.000	2.107	0.668	Open Manhole	1200
S2.001	35.911	150.3	S11	3.000	1.868	0.907	Open Manhole	1200
S3.000	37.800	150.0	S11	3.000	1.948	0.902	Open Manhole	1200
S4.000	49.601	239.6	SDeck 2	7.000	5.793	0.907	Open Manhole	1200
S4.001	24.801	240.8	SDeck 3	7.000	5.690	1.010	Open Manhole	1200
S4.002	24.801	6.5	S11	3.000	1.868	0.832	Open Manhole	1200
S2.002	9.650	180.0	S12	3.000	1.739	0.961	Open Manhole	1350
S2.003	10.132	321.0	S20	2.900	1.632	0.893	Open Manhole	1200
S2.004	10.132	321.0	S13	2.800	1.600	0.825	Open Manhole	1350
S2.005	37.307	324.4	S16	2.750	1.485	0.890	Open Manhole	1350

URS Infrastructure & Environment UK Ltd		Page 5
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S5.000	o	300		S16 3.000	1.850	0.850	Open Manhole	1200
S2.006	o	375		S16 2.750	1.485	0.890	Open Manhole	1350
S2.007	o	375	STank 4	2.700	1.437	0.888	Open Manhole	1350
S1.011	o	375	SMain Hydrobrake	2.700	1.389	0.936	Open Manhole	1350
S1.012	o	375	SNon return valve	2.600	1.365	0.860	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S5.000	23.781	148.6		S16 2.750	1.690	0.760	Open Manhole	1350
S2.006	13.962	290.0	STank 4	2.700	1.437	0.888	Open Manhole	1350
S2.007	13.962	290.0	SMain Hydrobrake	2.700	1.389	0.936	Open Manhole	1350
S1.011	6.886	290.0	SNon return valve	2.600	1.365	0.860	Open Manhole	1350
S1.012	6.886	290.0	SOutfall	2.500	1.341	0.784	Open Manhole	375

URS Infrastructure & Environment UK Ltd		Page 6
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.072	0.072	0.072
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.033	0.033	0.033
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.173	0.173	0.173
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.177	0.177	0.177
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.177	0.177	0.177
1.010	-	-	100	0.000	0.000	0.000
2.000	-	-	100	0.050	0.050	0.050
2.001	-	-	100	0.050	0.050	0.050
3.000	-	-	100	0.035	0.035	0.035
4.000	-	-	100	0.280	0.280	0.280
4.001	-	-	100	0.144	0.144	0.144
4.002	-	-	100	0.000	0.000	0.000
2.002	-	-	100	0.000	0.000	0.000
2.003	-	-	100	0.068	0.068	0.068
2.004	-	-	100	0.000	0.000	0.000
2.005	-	-	100	0.068	0.068	0.068
5.000	-	-	100	0.177	0.177	0.177
2.006	-	-	100	0.000	0.000	0.000
2.007	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.504	1.504	1.504

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	----------	--------

S1.012 SOutfall 2.500 1.341 1.000 375 0

Datum (m) 0.500 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
60	0.555	960	2.000	1860	2.000	2760	0.994	3660	0.555	4560	2.000	5460	2.000	6360	0.994
120	0.994	1020	2.000	1920	2.000	2820	0.555	3720	0.994	4620	2.000	5520	2.000	6420	0.555
180	1.450	1080	2.000	1980	1.450	2880	0.500	3780	1.450	4680	2.000	5580	1.450	6480	0.500
240	2.000	1140	2.000	2040	0.994	2940	0.555	3840	2.000	4740	2.000	5640	0.994	6540	0.555
300	2.000	1200	2.000	2100	0.555	3000	0.994	3900	2.000	4800	2.000	5700	0.555	6600	0.994
360	2.000	1260	1.450	2160	0.500	3060	1.450	3960	2.000	4860	1.450	5760	0.500	6660	1.450
420	2.000	1320	0.994	2220	0.555	3120	2.000	4020	2.000	4920	0.994	5820	0.555	6720	2.000
480	2.000	1380	0.555	2280	0.994	3180	2.000	4080	2.000	4980	0.555	5880	0.994	6780	2.000
540	1.450	1440	0.500	2340	1.450	3240	2.000	4140	1.450	5040	0.500	5940	1.450	6840	2.000
600	0.994	1500	0.555	2400	2.000	3300	2.000	4200	0.994	5100	0.555	6000	2.000	6900	2.000
660	0.555	1560	0.994	2460	2.000	3360	2.000	4260	0.555	5160	0.994	6060	2.000	6960	2.000
720	0.500	1620	1.450	2520	2.000	3420	1.450	4320	0.500	5220	1.450	6120	2.000	7020	1.450
780	0.555	1680	2.000	2580	2.000	3480	0.994	4380	0.555	5280	2.000	6180	2.000	7080	0.994
840	0.994	1740	2.000	2640	2.000	3540	0.555	4440	0.994	5340	2.000	6240	2.000	7140	0.555
900	1.450	1800	2.000	2700	1.450	3600	0.500	4500	1.450	5400	2.000	6300	1.450	7200	0.500

URS Infrastructure & Environment UK Ltd		Page 7
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
7260	0.555	7620	2.000	7980	0.555	8340	2.000	8700	0.555	9060	2.000	9420	0.555	9780	2.000
7320	0.994	7680	2.000	8040	0.994	8400	2.000	8760	0.994	9120	2.000	9480	0.994	9840	2.000
7380	1.450	7740	1.450	8100	1.450	8460	1.450	8820	1.450	9180	1.450	9540	1.450	9900	1.450
7440	2.000	7800	0.994	8160	2.000	8520	0.994	8880	2.000	9240	0.994	9600	2.000	9960	0.994
7500	2.000	7860	0.555	8220	2.000	8580	0.555	8940	2.000	9300	0.555	9660	2.000	10020	0.555
7560	2.000	7920	0.500	8280	2.000	8640	0.500	9000	2.000	9360	0.500	9720	2.000	10080	0.500

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	6	Number of Storage Structures	8
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	17.500	Storm Duration (mins)	30
Ratio R	0.400		

URS Infrastructure & Environment UK Ltd		Page 8
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

Online Controls for Storm

Hydro-Brake Optimum® Manhole: S4, DS/PN: S1.006, Volume (m³): 2.8

Unit Reference	MD-SHE-0070-2000-0750-2000
Design Head (m)	0.750
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	70
Invert Level (m)	2.004
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.750	2.0	Kick-Flo®	0.474	1.6
Flush-Flo™	0.223	1.9	Mean Flow over Head Range	-	1.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.7	0.800	2.0	2.000	3.1	4.000	4.2	7.000	5.5
0.200	1.9	1.000	2.2	2.200	3.2	4.500	4.5	7.500	5.7
0.300	1.9	1.200	2.4	2.400	3.3	5.000	4.7	8.000	5.8
0.400	1.8	1.400	2.6	2.600	3.5	5.500	4.9	8.500	6.0
0.500	1.6	1.600	2.8	3.000	3.7	6.000	5.1	9.000	6.2
0.600	1.8	1.800	2.9	3.500	4.0	6.500	5.3	9.500	6.4

Hydro-Brake Optimum® Manhole: S7, DS/PN: S1.009, Volume (m³): 2.9

Unit Reference	MD-SHE-0064-2000-1200-2000
Design Head (m)	1.200
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	64
Invert Level (m)	1.638
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	2.0	Kick-Flo®	0.573	1.4
Flush-Flo™	0.282	1.8	Mean Flow over Head Range	-	1.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.5	0.800	1.7	2.000	2.5	4.000	3.5	7.000	4.5
0.200	1.7	1.000	1.8	2.200	2.6	4.500	3.7	7.500	4.7
0.300	1.8	1.200	2.0	2.400	2.7	5.000	3.9	8.000	4.8
0.400	1.7	1.400	2.1	2.600	2.8	5.500	4.0	8.500	5.0
0.500	1.6	1.600	2.3	3.000	3.0	6.000	4.2	9.000	5.1
0.600	1.5	1.800	2.4	3.500	3.3	6.500	4.4	9.500	5.2

URS Infrastructure & Environment UK Ltd		Page 9
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

Hydro-Brake Optimum® Manhole: SDeck 3, DS/PN: S4.002, Volume (m³): 3.1

Unit Reference	MD-SHE-0101-4000-0500-4000
Design Head (m)	0.500
Design Flow (l/s)	4.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	101
Invert Level (m)	5.690
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.500	3.9	Kick-Flo®	0.361	3.4
Flush-Flo™	0.165	3.9	Mean Flow over Head Range	-	3.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.3	0.800	4.9	2.000	7.5	4.000	10.4	7.000	13.6
0.200	3.9	1.000	5.4	2.200	7.8	4.500	11.0	7.500	14.1
0.300	3.7	1.200	5.9	2.400	8.1	5.000	11.5	8.000	14.5
0.400	3.5	1.400	6.3	2.600	8.4	5.500	12.0	8.500	15.0
0.500	3.9	1.600	6.7	3.000	9.0	6.000	12.6	9.000	15.4
0.600	4.3	1.800	7.1	3.500	9.7	6.500	13.1	9.500	15.8

Hydro-Brake Optimum® Manhole: S13, DS/PN: S2.005, Volume (m³): 2.7

Unit Reference	MD-SHE-0123-7000-1000-7000
Design Head (m)	1.000
Design Flow (l/s)	7.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	123
Invert Level (m)	1.600
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	7.0	Kick-Flo®	0.651	5.7
Flush-Flo™	0.297	6.9	Mean Flow over Head Range	-	6.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.4	0.800	6.3	2.000	9.7	4.000	13.4	7.000	17.5
0.200	6.8	1.000	7.0	2.200	10.1	4.500	14.2	7.500	18.1
0.300	6.9	1.200	7.6	2.400	10.5	5.000	14.9	8.000	18.7
0.400	6.8	1.400	8.2	2.600	10.9	5.500	15.6	8.500	19.2
0.500	6.6	1.600	8.7	3.000	11.7	6.000	16.3	9.000	19.8
0.600	6.2	1.800	9.2	3.500	12.6	6.500	16.9	9.500	20.3

URS Infrastructure & Environment UK Ltd		Page 10
Scott House	Butlins Splash	
Alencon Link	Surface Water drainage	
Basingstoke RG21 7PP	surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

Hydro-Brake Optimum® Manhole: SMain Hydrobrake, DS/PN: S1.011, Volume (m³): 4.4

Unit Reference	MD-SHE-0213-2390-1100-2390
Design Head (m)	1.100
Design Flow (l/s)	23.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	213
Invert Level (m)	1.389
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.100	23.9	Kick-Flo®	0.790	20.4
Flush-Flo™	0.372	23.9	Mean Flow over Head Range	-	20.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.2	0.800	20.5	2.000	31.8	4.000	44.4	7.000	58.3
0.200	20.8	1.000	22.8	2.200	33.3	4.500	47.0	7.500	60.2
0.300	23.7	1.200	24.9	2.400	34.7	5.000	49.5	8.000	62.2
0.400	23.9	1.400	26.8	2.600	36.1	5.500	51.8	8.500	64.0
0.500	23.6	1.600	28.6	3.000	38.7	6.000	54.1	9.000	65.8
0.600	23.1	1.800	30.2	3.500	41.6	6.500	56.2	9.500	67.6

Non Return Valve Manhole: SNon return valve, DS/PN: S1.012, Volume (m³): 2.4

URS Infrastructure & Environment UK Ltd		Page 11
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

Storage Structures for Storm

Porous Car Park Manhole: Sperm pave 1, DS/PN: S1.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	18.7
Membrane Percolation (mm/hr)	1000	Length (m)	20.0
Max Percolation (l/s)	103.9	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.576	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: Sperm pave 2, DS/PN: S1.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	17.2
Max Percolation (l/s)	47.8	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.456	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: Sperm pave 3, DS/PN: S1.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	20.0
Membrane Percolation (mm/hr)	1000	Length (m)	44.5
Max Percolation (l/s)	247.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.174	Cap Volume Depth (m)	0.400

Cellular Storage Manhole: STank 2, DS/PN: S1.008

Invert Level (m)	1.730	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	540.0	0.0	0.500	540.0	0.0	0.501	0.0	0.0

Cellular Storage Manhole: STank 3, DS/PN: S1.010

Invert Level (m)	1.566	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	200.0	0.0	0.500	200.0	0.0	0.501	0.0	0.0

Cellular Storage Manhole: SDeck 2, DS/PN: S4.001

Invert Level (m)	5.793	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	4237.0	0.0	0.060	4237.0	0.0	0.061	0.0	0.0

URS Infrastructure & Environment UK Ltd		Page 12
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

Cellular Storage Manhole: S20, DS/PN: S2.004

Invert Level (m) 1.620 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	288.0	0.0	0.500	288.0	0.0	0.501	0.0	0.0

Cellular Storage Manhole: STank 4, DS/PN: S2.007

Invert Level (m) 1.437 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	176.0	0.0	0.500	176.0	0.0	0.501	0.0	0.0

URS Infrastructure & Environment UK Ltd		Page 13
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

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

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	6	Number of Storage Structures	8
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR M5-60 (mm)	17.500 Cv (Summer)	0.750
Region	England and Wales	Ratio R	0.400 Cv (Winter)
			0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 40

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Summer	1	0%	30/15 Summer				
S1.001	60 Winter	1	0%	100/15 Winter				
S1.002	15 Winter	1	0%	100/15 Summer				
S1.003	60 Winter	1	0%	100/15 Summer				
S1.004	15 Winter	1	0%	30/15 Summer				
S1.005	240 Winter	1	0%	30/180 Winter				
S1.006	240 Winter	1	0%	1/120 Winter				
S1.007	15 Winter	1	0%	100/15 Summer				
S1.008	600 Winter	1	0%	30/960 Winter				
S1.009	15 Winter	1	0%	1/15 Summer				
S1.010	480 Winter	1	0%	30/360 Winter				
S2.000	15 Winter	1	0%					
S2.001	15 Winter	1	0%	100/15 Summer				
S3.000	15 Winter	1	0%	100/15 Summer				
S4.000	15 Winter	1	0%	30/15 Summer	100/15 Summer			2
S4.001	1440 Winter	1	0%					
S4.002	1440 Winter	1	0%					
S2.002	15 Winter	1	0%	100/15 Summer				
S2.003	15 Winter	1	0%	100/15 Summer				
S2.004	600 Winter	1	0%	100/120 Winter				
S2.005	600 Winter	1	0%	100/15 Summer	100/600 Winter			2
S5.000	15 Winter	1	0%	100/15 Summer				
S2.006	480 Winter	1	0%	30/360 Summer				
S2.007	480 Winter	1	0%	30/240 Summer				
S1.011	480 Winter	1	0%	2/360 Winter				
S1.012	480 Winter	1	0%	1/360 Winter				

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Pipe Flow (l/s)	Status
S1.000		S1 2.782	-0.068	0.000	0.58	0.0	9.4 OK

URS Infrastructure & Environment UK Ltd		Page 14
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

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

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.001	Sperm pave 1	2.613	-0.113	0.000	0.14	0.0	1.9	OK
S1.002	S3	2.553	-0.091	0.000	0.32	0.0	3.9	OK
S1.003	Sperm pave 2	2.502	-0.104	0.000	0.20	0.0	2.4	OK
S1.004	S3	2.454	-0.114	0.000	0.49	0.0	18.0	OK
S1.005	Sperm pave 3	2.245	-0.154	0.000	0.07	0.0	2.7	OK
S1.006	S4	2.240	0.011	0.000	0.05	0.0	1.9	SURCHARGED
S1.007	S5	1.933	-0.189	0.000	0.29	0.0	18.3	OK
S1.008	STank 2	1.853	-0.177	0.000	0.03	0.0	1.7	OK
S1.009	S7	2.016	0.078	0.000	0.03	0.0	1.8	SURCHARGED
S1.010	STank 3	1.746	-0.120	0.000	0.16	0.0	9.8	OK
S2.000	S9	2.679	-0.171	0.000	0.13	0.0	6.3	OK
S2.001	S10	2.189	-0.143	0.000	0.28	0.0	11.3	OK
S3.000	S11	2.259	-0.091	0.000	0.32	0.0	4.5	OK
S4.000	SDeck 1	6.157	-0.143	0.000	0.54	0.0	36.2	OK
S4.001	SDeck 2	5.810	-0.283	0.000	0.01	0.0	0.7	OK
S4.002	SDeck 3	5.728	-0.262	0.000	0.00	0.0	0.7	OK
S2.002	S11	1.896	-0.197	0.000	0.26	0.0	15.9	OK
S2.003	S12	1.800	-0.239	0.000	0.29	0.0	22.6	OK
S2.004	S20	1.751	-0.256	0.000	0.05	0.0	4.1	OK
S2.005	S13	1.751	-0.224	0.000	0.04	0.0	4.2	OK
S5.000	S16	1.959	-0.191	0.000	0.28	0.0	23.0	OK
S2.006	S16	1.745	-0.115	0.000	0.05	0.0	4.9	OK
S2.007	STank 4	1.745	-0.067	0.000	0.11	0.0	9.9	OK
S1.011	SMain Hydrobrake	1.746	-0.018	0.000	0.26	0.0	20.2	OK
S1.012	SNon return valve	1.746	0.006	0.000	0.26	0.0	20.4	SURCHARGED

URS Infrastructure & Environment UK Ltd		Page 15
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

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

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 8 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 17.500 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320
 Return Period(s) (years) 1, 2, 30, 100
 Climate Change (%) 0, 0, 0, 40

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Summer	2	0%	30/15 Summer				
S1.001	60 Winter	2	0%	100/15 Winter				
S1.002	15 Winter	2	0%	100/15 Summer				
S1.003	60 Winter	2	0%	100/15 Summer				
S1.004	15 Winter	2	0%	30/15 Summer				
S1.005	180 Winter	2	0%	30/180 Winter				
S1.006	180 Winter	2	0%	1/120 Winter				
S1.007	15 Winter	2	0%	100/15 Summer				
S1.008	720 Winter	2	0%	30/960 Winter				
S1.009	15 Winter	2	0%	1/15 Summer				
S1.010	480 Winter	2	0%	30/360 Winter				
S2.000	15 Winter	2	0%					
S2.001	15 Winter	2	0%	100/15 Summer				
S3.000	15 Winter	2	0%	100/15 Summer				
S4.000	15 Winter	2	0%	30/15 Summer	100/15 Summer			2
S4.001	1440 Winter	2	0%					
S4.002	1440 Winter	2	0%					
S2.002	15 Winter	2	0%	100/15 Summer				
S2.003	15 Winter	2	0%	100/15 Summer				
S2.004	600 Winter	2	0%	100/120 Winter				
S2.005	600 Winter	2	0%	100/15 Summer	100/600 Winter			2
S5.000	15 Winter	2	0%	100/15 Summer				
S2.006	480 Winter	2	0%	30/360 Summer				
S2.007	480 Winter	2	0%	30/240 Summer				
S1.011	480 Winter	2	0%	2/360 Winter				
S1.012	480 Winter	2	0%	1/360 Winter				

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Pipe Flow (l/s)	Status
S1.000		S1 2.798	-0.052	0.000	0.75	0.0 12.1	OK

URS Infrastructure & Environment UK Ltd		Page 16
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

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

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / O'flow Cap.	Pipe Flow (l/s)	Status
S1.001	Sperm pave 1	2.621	-0.105	0.000	0.20	0.0	2.6 OK
S1.002	S3	2.564	-0.080	0.000	0.44	0.0	5.2 OK
S1.003	Sperm pave 2	2.512	-0.094	0.000	0.30	0.0	3.6 OK
S1.004	S3	2.473	-0.095	0.000	0.62	0.0	23.1 OK
S1.005	Sperm pave 3	2.273	-0.126	0.000	0.08	0.0	3.1 OK
S1.006	S4	2.268	0.039	0.000	0.05	0.0	1.9 SURCHARGED
S1.007	S5	1.950	-0.172	0.000	0.38	0.0	23.7 OK
S1.008	STank 2	1.888	-0.142	0.000	0.03	0.0	1.7 OK
S1.009	S7	2.064	0.125	0.000	0.03	0.0	1.8 SURCHARGED
S1.010	STank 3	1.775	-0.091	0.000	0.17	0.0	10.2 OK
S2.000	S9	2.687	-0.163	0.000	0.16	0.0	8.2 OK
S2.001	S10	2.202	-0.130	0.000	0.37	0.0	14.6 OK
S3.000	S11	2.268	-0.082	0.000	0.42	0.0	5.8 OK
S4.000	SDeck 1	6.185	-0.115	0.000	0.70	0.0	46.8 OK
S4.001	SDeck 2	5.813	-0.280	0.000	0.01	0.0	0.9 OK
S4.002	SDeck 3	5.732	-0.258	0.000	0.00	0.0	0.9 OK
S2.002	S11	1.912	-0.181	0.000	0.33	0.0	20.5 OK
S2.003	S12	1.822	-0.217	0.000	0.37	0.0	29.1 OK
S2.004	S20	1.784	-0.223	0.000	0.06	0.0	4.7 OK
S2.005	S13	1.784	-0.191	0.000	0.05	0.0	4.7 OK
S5.000	S16	1.976	-0.174	0.000	0.37	0.0	29.7 OK
S2.006	S16	1.774	-0.086	0.000	0.06	0.0	5.6 OK
S2.007	STank 4	1.774	-0.038	0.000	0.11	0.0	10.5 OK
S1.011	SMain Hydrobrake	1.774	0.010	0.000	0.27	0.0	21.1 SURCHARGED
S1.012	SNon return valve	1.774	0.034	0.000	0.27	0.0	21.3 SURCHARGED

URS Infrastructure & Environment UK Ltd		Page 17
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

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

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 8 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 17.500 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320
 Return Period(s) (years) 1, 2, 30, 100
 Climate Change (%) 0, 0, 0, 40

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	30	0%	30/15 Summer				
S1.001	30 Winter	30	0%	100/15 Winter				
S1.002	15 Winter	30	0%	100/15 Summer				
S1.003	15 Winter	30	0%	100/15 Summer				
S1.004	15 Summer	30	0%	30/15 Summer				
S1.005	360 Winter	30	0%	30/180 Winter				
S1.006	360 Winter	30	0%	1/120 Winter				
S1.007	1440 Winter	30	0%	100/15 Summer				
S1.008	1440 Winter	30	0%	30/960 Winter				
S1.009	15 Summer	30	0%	1/15 Summer				
S1.010	480 Winter	30	0%	30/360 Winter				
S2.000	15 Winter	30	0%					
S2.001	15 Winter	30	0%	100/15 Summer				
S3.000	15 Winter	30	0%	100/15 Summer				
S4.000	15 Winter	30	0%	30/15 Summer	100/15 Summer			2
S4.001	960 Winter	30	0%					
S4.002	960 Winter	30	0%					
S2.002	15 Winter	30	0%	100/15 Summer				
S2.003	600 Winter	30	0%	100/15 Summer				
S2.004	600 Winter	30	0%	100/120 Winter				
S2.005	600 Winter	30	0%	100/15 Summer	100/600 Winter			2
S5.000	15 Winter	30	0%	100/15 Summer				
S2.006	480 Winter	30	0%	30/360 Summer				
S2.007	480 Winter	30	0%	30/240 Summer				
S1.011	480 Winter	30	0%	2/360 Winter				
S1.012	480 Winter	30	0%	1/360 Winter				

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Pipe Flow (l/s)	Status
S1.000		S1 2.957	0.107	0.000	1.35	0.0	21.8 SURCHARGED

URS Infrastructure & Environment UK Ltd		Page 18
Scott House	Butlins Splash	
Alencon Link	Surface Water drainage	
Basingstoke RG21 7PP	surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

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

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.001	Sperm pave 1	2.651	-0.075	0.000	0.50	0.0	6.6	OK
S1.002	S3	2.611	-0.033	0.000	0.93	0.0	11.2	OK
S1.003	Sperm pave 2	2.559	-0.047	0.000	0.81	0.0	9.7	OK
S1.004	S3	2.654	0.086	0.000	1.23	0.0	45.7	SURCHARGED
S1.005	Sperm pave 3	2.415	0.016	0.000	0.12	0.0	4.3	SURCHARGED
S1.006	S4	2.493	0.264	0.000	0.05	0.0	1.9	SURCHARGED
S1.007	S5	2.056	-0.066	0.000	0.07	0.0	4.4	OK
S1.008	STank 2	2.055	0.024	0.000	0.03	0.0	2.1	SURCHARGED
S1.009	S7	2.130	0.192	0.000	0.03	0.0	1.8	SURCHARGED
S1.010	STank 3	1.901	0.035	0.000	0.24	0.0	14.8	SURCHARGED
S2.000	S9	2.712	-0.138	0.000	0.31	0.0	15.5	OK
S2.001	S10	2.258	-0.074	0.000	0.76	0.0	30.3	OK
S3.000	S11	2.301	-0.049	0.000	0.79	0.0	11.0	OK
S4.000	SDeck 1	6.418	0.118	0.000	1.26	0.0	84.8	SURCHARGED
S4.001	SDeck 2	5.827	-0.266	0.000	0.03	0.0	2.0	OK
S4.002	SDeck 3	5.757	-0.233	0.000	0.01	0.0	2.0	OK
S2.002	S11	1.975	-0.118	0.000	0.68	0.0	41.4	OK
S2.003	S12	1.940	-0.099	0.000	0.08	0.0	6.6	OK
S2.004	S20	1.939	-0.068	0.000	0.08	0.0	6.7	OK
S2.005	S13	1.938	-0.037	0.000	0.07	0.0	6.8	OK
S5.000	S16	2.035	-0.115	0.000	0.70	0.0	56.2	OK
S2.006	S16	1.908	0.048	0.000	0.08	0.0	7.8	SURCHARGED
S2.007	STank 4	1.908	0.096	0.000	0.17	0.0	15.9	SURCHARGED
S1.011	SMain Hydrobrake	2.028	0.264	0.000	0.30	0.0	23.3	SURCHARGED
S1.012	SNon return valve	1.934	0.194	0.000	0.30	0.0	23.4	SURCHARGED

URS Infrastructure & Environment UK Ltd		Page 19
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16	Designed by Roddy Prayag	
File 160824 SIMPLE NETWORK MODEL.MDX	Checked by JR	
XP Solutions	Network 2014.1.1	

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

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	6	Number of Storage Structures	8
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR M5-60 (mm)	17.500 Cv (Summer)	0.750
Region	England and Wales	Ratio R	0.400 Cv (Winter)
			0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 40

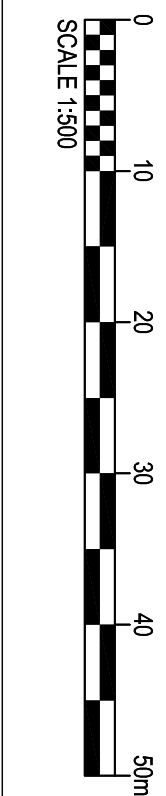
PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	100	+40%	30/15 Summer				
S1.001	1440 Winter	100	+40%	100/15 Winter				
S1.002	1440 Winter	100	+40%	100/15 Summer				
S1.003	1440 Winter	100	+40%	100/15 Summer				
S1.004	15 Winter	100	+40%	30/15 Summer				
S1.005	600 Winter	100	+40%	30/180 Winter				
S1.006	600 Winter	100	+40%	1/120 Winter				
S1.007	600 Winter	100	+40%	100/15 Summer				
S1.008	600 Winter	100	+40%	30/960 Winter				
S1.009	600 Winter	100	+40%	1/15 Summer				
S1.010	600 Winter	100	+40%	30/360 Winter				
S2.000	720 Winter	100	+40%					
S2.001	720 Winter	100	+40%	100/15 Summer				
S3.000	720 Winter	100	+40%	100/15 Summer				
S4.000	15 Winter	100	+40%	30/15 Summer	100/15 Summer			2
S4.001	720 Winter	100	+40%					
S4.002	720 Winter	100	+40%					
S2.002	720 Winter	100	+40%	100/15 Summer				
S2.003	720 Winter	100	+40%	100/15 Summer				
S2.004	720 Winter	100	+40%	100/120 Winter				
S2.005	720 Winter	100	+40%	100/15 Summer	100/600 Winter			2
S5.000	600 Winter	100	+40%	100/15 Summer				
S2.006	600 Winter	100	+40%	30/360 Summer				
S2.007	600 Winter	100	+40%	30/240 Summer				
S1.011	600 Winter	100	+40%	2/360 Winter				
S1.012	600 Winter	100	+40%	1/360 Winter				

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.000		S1 3.397	0.547	0.000	2.31	0.0	37.3	FLOOD RISK

URS Infrastructure & Environment UK Ltd		Page 20
Scott House Alencon Link Basingstoke RG21 7PP	Butlins Splash Surface Water drainage surcharged outfall	
Date 26/08/16 File 160824 SIMPLE NETWORK MODEL.MDX	Designed by Roddy Prayag Checked by JR	
XP Solutions	Network 2014.1.1	

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

PN	US/MH Name	Water	Surch'd Depth (m)	Flooded	Flow / O'flow Cap.	Pipe	Flow (1/s)	Status
		Level (m)		Volume (m³)		O'flow (1/s)		
S1.001	Sperm pave 1	2.785	0.059	0.000	0.14	0.0	1.8	SURCHARGED
S1.002	S3	2.784	0.140	0.000	0.22	0.0	2.7	SURCHARGED
S1.003	Sperm pave 2	2.784	0.178	0.000	0.22	0.0	2.7	SURCHARGED
S1.004	S3	2.914	0.346	0.000	1.72	0.0	63.6	SURCHARGED
S1.005	Sperm pave 3	2.791	0.392	0.000	0.16	0.0	6.0	SURCHARGED
S1.006	S4	2.792	0.563	0.000	0.05	0.0	1.9	SURCHARGED
S1.007	S5	2.825	0.702	0.000	0.17	0.0	10.7	FLOOD RISK
S1.008	STank 2	2.824	0.794	0.000	0.03	0.0	1.7	FLOOD RISK
S1.009	S7	2.824	0.885	0.000	0.03	0.0	1.8	FLOOD RISK
S1.010	STank 3	2.596	0.730	0.000	0.30	0.0	18.1	SURCHARGED
S2.000	S9	2.815	-0.035	0.000	0.04	0.0	2.2	OK
S2.001	S10	2.812	0.480	0.000	0.11	0.0	4.4	FLOOD RISK
S3.000	S11	2.812	0.462	0.000	0.11	0.0	1.6	FLOOD RISK
S4.000	SDeck 1	7.001	0.701	0.637	2.11	0.0	142.1	FLOOD
S4.001	SDeck 2	5.852	-0.241	0.000	0.06	0.0	3.9	OK
S4.002	SDeck 3	5.822	-0.168	0.000	0.01	0.0	3.9	OK
S2.002	S11	2.809	0.716	0.000	0.14	0.0	8.5	FLOOD RISK
S2.003	S12	2.806	0.767	0.000	0.14	0.0	11.2	FLOOD RISK
S2.004	S20	2.803	0.796	0.000	0.09	0.0	7.0	FLOOD RISK
S2.005	S13	2.801	0.826	1.122	0.07	0.0	6.9	FLOOD
S5.000	S16	2.610	0.460	0.000	0.11	0.0	9.1	SURCHARGED
S2.006	S16	2.608	0.748	0.000	0.16	0.0	15.1	FLOOD RISK
S2.007	STank 4	2.603	0.791	0.000	0.26	0.0	23.8	FLOOD RISK
S1.011	SMain Hydrobrake	2.599	0.835	0.000	0.30	0.0	23.4	FLOOD RISK
S1.012	SNon return valve	2.502	0.762	0.000	0.30	0.0	23.7	FLOOD RISK



CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISKS	DEMOLITION RISKS
In addition to the hazards/risks normally associated with the type of work described above, the following hazards/risks may be associated with this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement. SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX This drawing is for preliminary purposes only and is subject to amendment during design development. It is not to be used for construction purposes.		

- | KEY | |
|-----|---|
| | SITE BOUNDARY |
| | EXISTING UNDRAINED PERMEABLE AREA |
| | EXISTING IMPERMEABLE AREA DRAINING OFFSITE |
| | EXISTING IMPERMEABLE AREA DRAINING TO RIVER |
| | EXISTING IMPERMEABLE AREA DRAINING TO SITE DRAINAGE OUTFALL |

Revision Details	By Check	Date	Suffix
------------------	-------------	------	--------

Purpose of Issue

FOR INFORMATION

Client

BUTLINS

Project Title

**BUTLINS SPLASH
BOGNOR REGIS**

Existing Drained Areas

60472940	FOR INFORMATION
----------	-----------------

was prepared and provided. Only written dimensions shall be used.
© AECOM Infrastructure & Environment UK Limited

AECOM Infrastructure & Environment UK Limited

ALCOA

BUT-AEC-XX-050-DRG-CE-0001 P03

D03



PROPOSED PERMEABLE / IMPERMEABLE AREAS			
TOTAL AREA	3.097ha	100%	
PERMEABLE AREA	0.913ha	30%	
IMPERMEABLE BUILDING ROOFS	0.968ha	31%	
LINED, PERMEABLE SURFACING	0.161ha	5%	
IMPERMEABLE ROAD SURFACES	0.405ha	13%	
IMPERMEABLE FOOTPATHS	0.021ha	1%	
IMPERMEABLE EXISTING CONCRETE BRIDGE/ CAR PARK	0.629ha	20%	

CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISKS	DEMOLITION RISKS
In addition to the hazards/risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent contracted workforce, where appropriate, to the appropriate technical standards.		
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX		

This drawing is for preliminary purposes only and is subject to amendment during design development. UNDER NO CIRCUMSTANCES MUST THIS DRAWING BE USED FOR CONSTRUCTION PURPOSES

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS' ENGINEERS' SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND / OR THE ENGINEER FOR CLARIFICATION.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. DO NOT SCALE THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH AND SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.

- KEY
- SITE BOUNDARY
 - PROPOSED PERMEABLE AREAS
 - PROPOSED BUILDING ROOFS
 - PROPOSED PERMEABLE SURFACING(BLOCK PAVING OR PERMEABLE ASPHALT)
 - PROPOSED ROADS
 - PROPOSED FOOTPATHS
 - EXISTING CONCRETE BRIDGE/ CAR PARK OVER RIVER RIFE

Purpose of Issue		By	Date	Scale
FOR INFORMATION		CH	28.08.16	P03
DETAILS UPDATED TO REFLECT ARCHITECT'S LAYOUT		RP	07.04.16	P02
DETAILS UPDATED TO REFLECT ARCHITECT'S LAYOUT		JR	11.03.16	P01
FIRST ISSUE		JR		
Revision Details		By	Date	Scale
		CH		

FOR INFORMATION

Client: BUTLINS

Project Title: BUTLINS SPLASH BOGNOR REGIS

PROPOSED DRAINED AREAS

Designed	Drawn	Checked	Approved	Date
JCH	JCH	JR	JR	FEB 2016
Units: Imperial/Project No.		Scales:		
60472840		FOR INFORMATION		

Scale @ A1: 1:500 AND 1:1000 AT A3

This document has been prepared in accordance with the scope of AECOM's appointment with its client and is subject to the terms of that appointment. AECOM accepts no liability for any errors or omissions, whether or not caused by negligence, in the design or construction of any works proposed and provided. Only written dimensions shall be used.

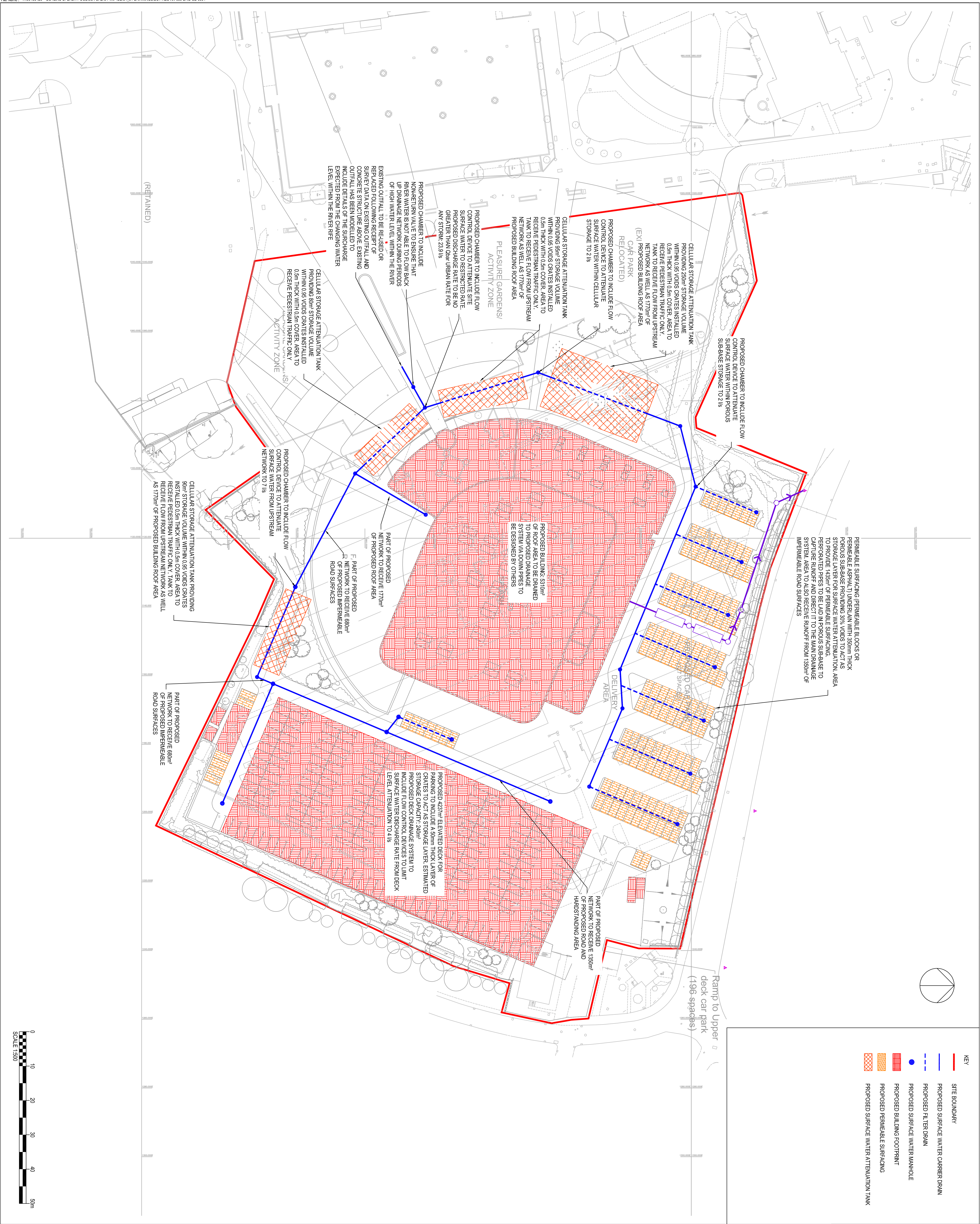
© AECOM Infrastructure & Environment UK Limited

AECOM Infrastructure & Environment UK Limited
AECOM UK, Birmingham
Sangeeta, RQ21 7PP
+44 (0)1256 311 200
+44 (0)1256 311 201
www.aecom.co.uk

AECOM

Drawing Number: BUT-AEC-XX-050-DRG-CE-0002

Rev: P03



- KEY**
- SITE BOUNDARY
 - PROPOSED SURFACE WATER CARRIER DRAIN
 - PROPOSED FILTER DRAIN
 - PROPOSED SURFACE WATER MANHOLE
 - PROPOSED BUILDING FOOTPRINT
 - PROPOSED PERMEABLE SURFACING
 - PROPOSED SURFACE WATER ATTENUATION TANK

PERMEABLE SURFACING (PERMEABLE BLOCKS OR PERMEABLE ASPHALT) UNDERLAIN WITH 350mm THICK POROUS SUB-BASE PROVIDING 30% Voids TO ACT AS STORAGE LAYER FOR SURFACE WATER ATTENUATION. AREA TO PROVIDE 1450m² OF PERMEABLE SURFACING. PERFORATED PIPES TO BE LAID IN POROUS SUB-BASE TO CAPTURE RUNOFF AND DIRECT IT TO THE MAIN DRAINAGE SYSTEM. AREA TO ALSO RECEIVE RUNOFF FROM 1350m² OF IMPERMEABLE ROAD SURFACES

EASTING CUTFALL LEVEL FOR SURFACE WATER NETWORK IDENTIFICATION OF INVERT LEVEL WOULD NECESSITATE A SIGNED SPACE ALL APPROPRIATE SAFETY MEASURES WHEN IDENTIFYING THIS INVERT LEVEL.		
CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS
In addition to the hazards/risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent, contracted workforce, where appropriate, to the appropriate technical specification.		
SAFETY - HEALTH AND ENVIRONMENTAL INFORMATION BOX		

This drawing is for preliminary purposes only and is subject to amendment during design development. UNDER NO CIRCUMSTANCES MUST THIS DRAWING BE USED FOR CONSTRUCTION PURPOSES

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS' ENGINEERS' SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
- ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND / OR THE ENGINEER FOR CLARIFICATION.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- DO NOT SCALE THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH AND SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.
- THE TOTAL VOLUME OF ATTENUATION STORAGE REQUIRED TO RESTRICT THE PEAK DISCHARGE FROM RAINFALL EVENTS WITH A RETURN PERIOD OF UP TO 1 IN 100 YEARS +40% CLIMATE CHANGE TO 0.848 OF 23.916 IS 970m³. THIS STORAGE IS PROPOSED TO BE PROVIDED USING A COMBINATION OF THE SUSTAINABLE DRAINAGE SYSTEMS PRESENTED ON THIS DRAWING.
- THIS DRAWING ILLUSTRATES THE LOCATION OF STRATEGIC SUDS AND SEWERS. ADDITIONAL SURFACE WATER INFRASTRUCTURE WILL BE REQUIRED TO INTERCEPT AND CONVEY RUNOFF FROM EXTERNAL PAVED AREAS AND THE BUILDING ROOF TO THE ON-LOT DRAINAGE NETWORK.
- THE ATTENUATION STORAGE VOLUMES PRESENTED ON THIS DRAWING ARE PRELIMINARY AND INCLUDE AN ESTIMATED ALLOWANCE FOR TIDE LOCKING STORAGE VOLUMES MAY CHANGE ONCE THE TIDE LEVELS OF THE OUTFALL ARE CONFINED.
- THIS DRAINAGE STRATEGY ASSUMES THAT EXISTING GROUND LEVELS WILL BE RAISED ACROSS THE SITE TO PROVIDE COVER LEVELS AS INDICATED AT EACH OF THE CHAMBERS.

SURFACE WATER STRATEGY UPDATED TO REFLECT LATEST ARCHITECT LAYOUT	JC	RP	28.08.16	P04
SURFACE WATER STRATEGY UPDATED TO REFLECT LATEST ARCHITECT LAYOUT	JCH	JR	07.04.16	P03
SERVICES SURVEY ADDED	JCH	JR	30.03.16	P02
FIRST ISSUE	JCH	JR	11.03.16	P01

Revision Details	By	Check	Date	Scale
------------------	----	-------	------	-------

FOR INFORMATION

BUTLINS

BUTLINS SPLASH
BOGNOR REGIS

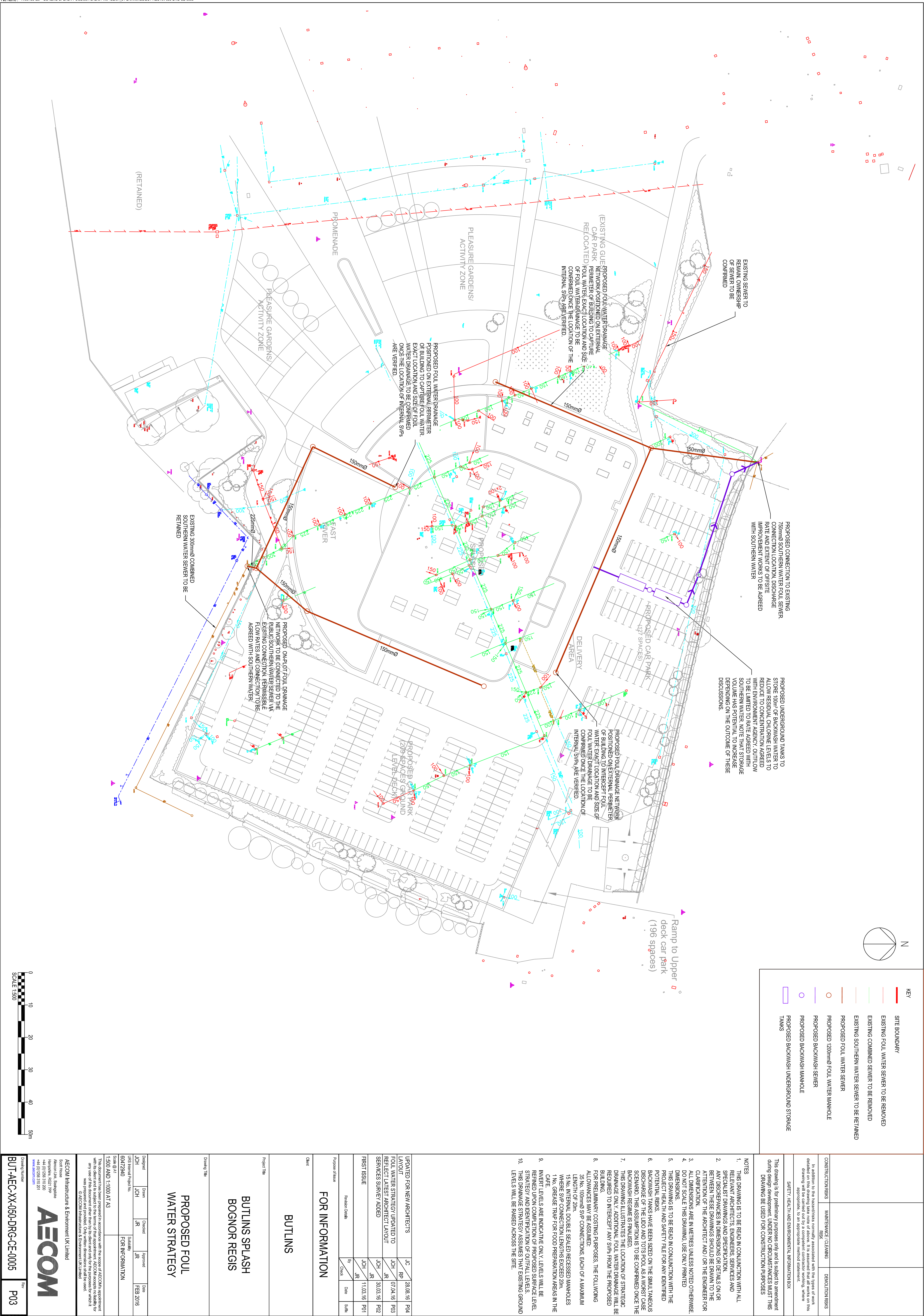
PROPOSED SURFACE
WATER STRATEGY

Drawn	Checked	Approved	Date
JCH	JR	JR	FEB 2016
UHS Internal Project No.	60472840	FOR INFORMATION	

Scale @ A1
1:500 AND 1:1000 AT A3

This document has been prepared in accordance with the scope of AECOM's appointment with its client and is subject to the terms of that appointment. AECOM accepts no liability for any use of this document for purposes other than those intended. Any use of this document for any other purpose is at the user's sole risk. © AECOM Infrastructure & Environment UK Limited

AECOM Infrastructure & Environment UK Limited
AECOM UK, Birmingham
Birmingham, B22 7PP
+44 (0)121 755 31100
+44 (0)121 755 31101



About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government. With approximately 100,000 employees around the world, AECOM is a leader in all of the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue in excess of \$6 billion.

More information on AECOM and its services can be found at www.aecom.com.

Scott House
Alençon Link
Basingstoke
Hampshire
RG21 7PP
United Kingdom
+44 1256 310200