

DCWW SECTION 104 DRAINAGE NETWORK DETAILS

Site at Main Road, Rhosrobin

For

Castle Green Homes Ltd

Rev. 1.0

05th November 2021

MAIN ROAD, RHOSROBIN

Drainage Network Details

05th November 2021

Issue no.	Rev. 1.0			
Date:	05 th Nov 2021			
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<u>FOUL SEWERAGE DESIGN</u>							
<u>Design Criteria for CGH04 - Foul Drainage.fws</u>							
Pipe Sizes STANDARD				Manhole Sizes STANDARD			
Industrial Flow (l/s/ha)	0.00	Domestic (l/s/ha)	0.00	Maximum Backdrop Height (m)	1.500		
Industrial Peak Flow Factor	0.00	Domestic Peak Flow Factor	6.00	Min Design Depth for Optimisation (m)	1.200		
Flow Per Person (l/per/day)	222.00	Add Flow / Climate Change (%)	0	Min Vel for Auto Design only (m/s)	0.75		
Persons per House	3.00	Minimum Backdrop Height (m)	0.200	Min Slope for Optimisation (1:X)	500		
Designed with Level Soffits							

Network Design Table for CGH04 - Foul Drainage.fws												
PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design	
F1.000	12.720	0.252	50.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.001	8.424	1.388	6.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.002	68.548	0.538	127.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.003	71.306	1.508	47.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.004	81.246	3.217	25.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.005	81.475	3.310	24.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.006	76.703	2.322	33.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.007	7.074	0.013	544.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.008	22.806	0.165	138.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.009	7.674	0.073	105.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.010	54.836	0.155	353.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.011	67.742	0.740	91.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit		
F1.012	24.774	0.270	91.8	0.000	0	0.0	1.500	o	600	Pipe/Conduit		
F1.013	105.474	1.150	91.7	0.000	0	0.0	1.500	o	600	Pipe/Conduit		
F1.014	95.431	1.041	91.7	0.000	0	0.0	1.500	o	600	Pipe/Conduit		
F1.015	93.103	1.015	91.7	0.000	0	0.0	1.500	o	600	Pipe/Conduit		
F2.000	5.414	0.135	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit		
F2.001	6.896	0.115	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit		
F2.002	0.903	0.015	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit		
F2.003	6.074	0.101	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit		
F2.004	11.775	0.196	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit		
F2.005	5.636	0.094	60.0	0.000	1	0.0	1.500	o	100	Pipe/Conduit		
F3.000	5.414	0.135	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit		
F3.001	6.896	0.115	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit		

Network Results Table											
PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
F1.000	96.474	0.000	0.0	0	0.0	0	0.00	1.23	21.8	0.0	
F1.001	96.222	0.000	0.0	0	0.0	0	0.00	3.57	63.1	0.0	
F1.002	94.834	0.000	0.0	0	0.0	0	0.00	0.78	13.7	0.0	
F1.003	94.296	0.000	0.0	0	0.0	0	0.00	1.28	22.6	0.0	
F1.004	92.788	0.000	0.0	0	0.0	0	0.00	1.75	30.9	0.0	
F1.005	89.571	0.000	0.0	0	0.0	0	0.00	1.77	31.3	0.0	
F1.006	86.261	0.000	0.0	0	0.0	0	0.00	1.53	27.0	0.0	
F1.007	83.939	0.000	0.0	0	0.0	0	0.00	0.37	6.6	0.0	
F1.008	83.926	0.000	0.0	0	0.0	0	0.00	0.74	13.2	0.0	
F1.009	83.761	0.000	0.0	0	0.0	0	0.00	0.85	15.1	0.0	
F1.010	83.688	0.000	0.0	0	0.0	0	0.00	0.46	8.2	0.0	
F1.011	83.533	0.000	0.0	0	0.0	0	0.00	0.92	16.2	0.0	
F1.012	82.343	0.000	0.0	0	0.0	0	0.00	2.27	640.6	0.0	
F1.013	82.073	0.000	0.0	0	0.0	0	0.00	2.27	640.8	0.0	
F1.014	80.922	0.000	0.0	0	0.0	0	0.00	2.27	640.9	0.0	
F1.015	79.881	0.000	0.0	0	0.0	0	0.00	2.27	640.7	0.0	
F2.000	94.740	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0	
F2.001	94.605	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0	
F2.002	94.490	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0	
F2.003	94.475	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0	
F2.004	94.374	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0	
F2.005	94.178	0.000	0.0	2	0.0	9	0.29	0.86	6.8	0.1	
F3.000	94.940	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0	
F3.001	94.805	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0	

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F3.002	0.903	0.015	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F3.003	6.855	0.114	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F2.006	2.172	0.036	60.3	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F4.000	6.609	0.165	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F4.001	6.650	0.111	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F4.002	1.190	0.020	59.5	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F4.003	6.797	0.113	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F2.007	9.894	0.165	60.0	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F5.000	5.867	0.147	39.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F5.001	5.067	0.084	60.3	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F5.002	1.092	0.018	60.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F5.003	4.539	0.076	59.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F5.004	5.405	0.090	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F2.008	10.990	0.183	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F6.000	1.917	0.048	39.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F6.001	6.268	0.109	57.5	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F2.009	9.248	0.154	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F2.010	12.278	0.092	133.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F7.000	6.609	0.165	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F7.001	6.674	0.111	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F7.002	1.166	0.019	61.4	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F7.003	6.730	0.225	29.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F8.000	1.499	0.037	40.5	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F8.001	2.947	0.049	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F8.002	4.063	0.068	59.8	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F8.003	1.506	0.025	60.2	0.000	1	0.0	1.500	o	100	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F3.002	94.690	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F3.003	94.675	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F2.006	94.084	0.000	0.0	2	0.0	9	0.29	0.86	6.7	0.1
F4.000	95.245	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F4.001	95.080	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F4.002	94.969	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F4.003	94.949	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F2.007	94.048	0.000	0.0	3	0.0	10	0.33	0.86	6.8	0.1
F5.000	95.510	0.000	0.0	0	0.0	0	0.00	1.06	8.3	0.0
F5.001	95.363	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F5.002	95.279	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F5.003	95.260	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F5.004	95.184	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F2.008	93.883	0.000	0.0	4	0.0	12	0.36	0.86	6.8	0.2
F6.000	95.827	0.000	0.0	0	0.0	0	0.00	1.06	8.3	0.0
F6.001	95.779	0.000	0.0	0	0.0	0	0.00	0.88	6.9	0.0
F2.009	93.700	0.000	0.0	5	0.0	13	0.39	0.86	6.8	0.2
F2.010	93.495	0.000	0.0	5	0.0	14	0.28	0.76	13.4	0.2
F7.000	94.292	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F7.001	94.126	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F7.002	94.015	0.000	0.0	0	0.0	0	0.00	0.85	6.7	0.0
F7.003	93.996	0.000	0.0	0	0.0	0	0.00	1.22	9.6	0.0
F8.000	93.950	0.000	0.0	0	0.0	0	0.00	1.05	8.2	0.0
F8.001	93.913	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F8.002	93.863	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F8.003	93.795	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F7.004	10.200	0.170	60.0	0.000	1	0.0	1.500	o	100	Pipe/Conduit	🟢
F9.000	5.414	0.135	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F9.001	6.896	0.115	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F9.002	0.903	0.015	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F9.003	7.580	0.126	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F7.005	9.446	0.157	60.2	0.000	1	0.0	1.500	o	100	Pipe/Conduit	🟢
F10.000	6.325	0.158	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F10.001	5.270	0.088	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F10.002	7.885	0.131	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F7.006	16.823	0.280	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	🟡
F11.000	6.325	0.158	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F11.001	5.270	0.088	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F11.002	4.438	0.074	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F11.003	3.883	0.065	59.7	0.000	1	0.0	1.500	o	100	Pipe/Conduit	🟡
F7.007	6.722	0.050	134.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	🟡
F2.011	44.831	1.687	26.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	🟡
F12.000	1.816	0.045	40.4	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F12.001	1.894	0.032	59.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F13.000	1.634	0.140	11.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F12.002	9.263	0.154	60.1	0.000	3	0.0	1.500	o	100	Pipe/Conduit	🟡
F14.000	4.856	0.121	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	🟡
F12.003	11.560	0.193	59.9	0.000	3	0.0	1.500	o	100	Pipe/Conduit	🟡

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F7.004	93.770	0.000	0.0	2	0.0	9	0.29	0.86	6.8	0.1
F9.000	94.696	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F9.001	94.560	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F9.002	94.445	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F9.003	94.430	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F7.005	93.600	0.000	0.0	3	0.0	10	0.33	0.86	6.7	0.1
F10.000	95.238	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F10.001	95.080	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F10.002	94.992	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F7.006	93.443	0.000	0.0	4	0.0	12	0.36	0.86	6.7	0.2
F11.000	95.238	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F11.001	95.080	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F11.002	94.992	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F11.003	94.918	0.000	0.0	1	0.0	6	0.23	0.86	6.8	0.0
F7.007	93.113	0.000	0.0	5	0.0	14	0.28	0.75	13.3	0.2
F2.011	93.062	0.000	0.0	10	0.0	13	0.60	1.70	30.1	0.5
F12.000	93.419	0.000	0.0	0	0.0	0	0.00	1.05	8.2	0.0
F12.001	93.374	0.000	0.0	0	0.0	0	0.00	0.87	6.8	0.0
F13.000	93.482	0.000	0.0	0	0.0	0	0.00	1.96	15.4	0.0
F12.002	93.342	0.000	0.0	3	0.0	10	0.33	0.86	6.7	0.1
F14.000	93.100	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F12.003	92.979	0.000	0.0	6	0.0	14	0.41	0.86	6.8	0.3

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F15.000	1.644	0.224	7.3	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F12.004	3.902	0.065	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F12.005	7.423	0.061	121.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F12.006	49.147	0.509	96.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F16.000	5.414	0.135	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.001	6.896	0.115	60.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.002	0.903	0.015	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.003	6.085	0.101	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.004	8.176	0.136	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F16.005	1.507	0.025	60.3	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F17.000	5.867	0.147	39.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F17.001	5.077	0.085	59.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F17.002	1.092	0.018	60.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F17.003	4.539	0.076	59.7	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F17.004	5.262	0.088	59.8	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.006	10.662	0.178	59.9	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F18.000	6.609	0.165	40.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F18.001	6.650	0.111	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F18.002	1.190	0.020	59.5	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F18.003	8.365	0.139	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F16.007	6.230	0.104	59.9	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F16.008	11.010	0.083	132.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F19.000	2.080	0.052	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.001	6.126	0.102	60.1	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.002	7.182	0.120	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.003	8.234	0.137	60.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F15.000	93.010	0.000	0.0	0	0.0	0	0.00	2.47	19.4	0.0
F12.004	92.786	0.000	0.0	6	0.0	14	0.41	0.86	6.8	0.3
F12.005	92.671	0.000	0.0	6	0.0	15	0.30	0.79	14.0	0.3
F12.006	91.885	0.000	0.0	6	0.0	14	0.33	0.89	15.8	0.3
F16.000	94.388	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F16.001	94.252	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F16.002	94.137	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F16.003	94.122	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F16.004	94.021	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0
F16.005	93.885	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0
F17.000	93.679	0.000	0.0	0	0.0	0	0.00	1.06	8.3	0.0
F17.001	93.532	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F17.002	93.447	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F17.003	93.429	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F17.004	93.353	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F16.006	93.265	0.000	0.0	2	0.0	9	0.29	0.86	6.8	0.1
F18.000	93.001	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F18.001	92.836	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F18.002	92.725	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F18.003	92.705	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F16.007	92.566	0.000	0.0	3	0.0	10	0.33	0.86	6.8	0.1
F16.008	92.412	0.000	0.0	3	0.0	11	0.24	0.76	13.4	0.1
F19.000	94.207	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F19.001	94.155	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F19.002	94.053	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F19.003	93.933	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0

Betts Associates Limited		Page 8
6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rhosrobin, Wrexham Foul Water	
Date 01/10/2021	Designed by CP	
File CGH04 - PHASE 1 DRAINAGE CHECK ...	Checked by RA	
XP Solutions	Network 2020.1	

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F20.000	5.238	0.486	10.8	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.004	1.954	0.033	59.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F21.000	2.517	0.063	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.005	8.905	0.148	60.2	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F22.000	7.284	0.182	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F19.006	9.037	0.389	23.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F2.012	33.100	1.246	26.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F23.000	24.761	1.023	24.2	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
F23.001	13.007	0.538	24.2	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
F23.002	11.095	0.459	24.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F23.003	13.438	0.427	31.5	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
F23.004	23.922	0.400	59.8	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
F23.005	14.201	0.238	59.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F23.006	18.177	0.137	132.7	0.000	11	0.0	1.500	o	150	Pipe/Conduit	
F23.007	28.164	0.212	132.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F24.000	2.499	0.062	40.3	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F24.001	8.905	0.148	60.2	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
F25.000	7.265	0.182	39.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F24.002	1.248	0.021	59.4	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F26.000	3.469	0.087	39.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F26.001	2.988	0.050	59.8	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F26.002	5.422	0.090	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	
F24.003	11.572	0.193	60.0	0.000	1	0.0	1.500	o	100	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F20.000	94.282	0.000	0.0	0	0.0	0	0.00	2.04	16.0	0.0
F19.004	93.796	0.000	0.0	1	0.0	6	0.23	0.87	6.8	0.0
F21.000	93.624	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F19.005	93.561	0.000	0.0	2	0.0	9	0.29	0.86	6.7	0.1
F22.000	92.900	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F19.006	92.718	0.000	0.0	2	0.0	7	0.39	1.39	10.9	0.1
F2.012	91.375	0.000	0.0	21	0.0	19	0.77	1.70	30.1	1.0
F23.000	91.235	0.000	0.0	4	0.0	9	0.46	1.79	31.6	0.2
F23.001	90.212	0.000	0.0	8	0.0	12	0.58	1.79	31.6	0.4
F23.002	89.674	0.000	0.0	8	0.0	12	0.58	1.79	31.6	0.4
F23.003	89.215	0.000	0.0	17	0.0	18	0.67	1.57	27.7	0.8
F23.004	88.788	0.000	0.0	21	0.0	23	0.58	1.13	20.0	1.0
F23.005	88.388	0.000	0.0	21	0.0	23	0.58	1.14	20.1	1.0
F23.006	88.150	0.000	0.0	32	0.0	34	0.50	0.76	13.4	1.5
F23.007	88.013	0.000	0.0	32	0.0	34	0.50	0.76	13.4	1.5
F24.000	92.874	0.000	0.0	0	0.0	0	0.00	1.05	8.2	0.0
F24.001	92.811	0.000	0.0	1	0.0	6	0.23	0.86	6.7	0.0
F25.000	92.364	0.000	0.0	0	0.0	0	0.00	1.06	8.3	0.0
F24.002	92.182	0.000	0.0	1	0.0	6	0.23	0.86	6.8	0.0
F26.000	92.100	0.000	0.0	0	0.0	0	0.00	1.06	8.3	0.0
F26.001	92.013	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F26.002	91.963	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F24.003	91.873	0.000	0.0	2	0.0	9	0.29	0.86	6.8	0.1

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F27.000	6.154	0.154	40.0	0.000	0	0.0	1.500	o	100	Pipe/Conduit	⚠
F27.001	4.934	0.082	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	⚠
F27.002	1.070	0.018	59.4	0.000	0	0.0	1.500	o	100	Pipe/Conduit	⚠
F27.003	4.493	0.075	59.9	0.000	0	0.0	1.500	o	100	Pipe/Conduit	⚠
F27.004	5.053	0.084	60.2	0.000	0	0.0	1.500	o	100	Pipe/Conduit	⚠
F24.004	7.955	0.133	59.8	0.000	1	0.0	1.500	o	100	Pipe/Conduit	⚠
F24.005	11.256	0.509	22.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.013	21.583	0.510	42.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	✅
F2.014	20.192	0.477	42.3	0.000	5	0.0	1.500	o	150	Pipe/Conduit	✅
F2.015	21.896	0.517	42.4	0.000	7	0.0	1.500	o	150	Pipe/Conduit	✅
F28.000	25.395	0.191	133.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.016	16.938	0.403	42.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.000	14.122	0.438	32.2	0.000	6	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.001	19.276	0.145	132.9	0.000	7	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.002	14.095	0.106	133.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.003	26.750	0.201	133.1	0.000	6	0.0	1.500	o	150	Pipe/Conduit	✅
F29.004	13.856	0.104	133.2	0.000	7	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.005	12.567	0.094	133.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.006	17.805	0.134	132.9	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.007	12.589	0.095	132.5	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F29.008	22.627	0.170	133.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.017	42.204	0.317	133.1	0.000	3	0.0	1.500	o	150	Pipe/Conduit	⚠
F30.000	25.804	0.194	133.0	0.000	6	0.0	1.500	o	150	Pipe/Conduit	⚠
F30.001	22.947	0.173	132.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.018	42.102	0.317	132.8	0.000	9	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.019	16.861	0.127	132.8	0.000	8	0.0	1.500	o	150	Pipe/Conduit	⚠

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F27.000	91.235	0.000	0.0	0	0.0	0	0.00	1.05	8.3	0.0
F27.001	91.081	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F27.002	90.999	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F27.003	90.981	0.000	0.0	0	0.0	0	0.00	0.86	6.8	0.0
F27.004	90.906	0.000	0.0	0	0.0	0	0.00	0.86	6.7	0.0
F24.004	90.822	0.000	0.0	3	0.0	10	0.33	0.86	6.8	0.1
F24.005	90.639	0.000	0.0	3	0.0	7	0.43	1.87	33.0	0.1
F2.013	87.801	0.000	0.0	56	0.0	34	0.88	1.35	23.8	2.6
F2.014	87.291	0.000	0.0	61	0.0	35	0.90	1.35	23.8	2.8
F2.015	86.814	0.000	0.0	68	0.0	37	0.93	1.35	23.8	3.1
F28.000	86.488	0.000	0.0	2	0.0	9	0.20	0.76	13.4	0.1
F2.016	86.297	0.000	0.0	70	0.0	37	0.94	1.35	23.9	3.2
F29.000	85.005	0.000	0.0	6	0.0	11	0.48	1.55	27.3	0.3
F29.001	84.566	0.000	0.0	13	0.0	22	0.38	0.76	13.4	0.6
F29.002	84.421	0.000	0.0	13	0.0	22	0.38	0.76	13.4	0.6
F29.003	84.315	0.000	0.0	19	0.0	26	0.42	0.76	13.4	0.9
F29.004	84.114	0.000	0.0	26	0.0	31	0.47	0.76	13.4	1.2
F29.005	84.010	0.000	0.0	26	0.0	31	0.46	0.76	13.4	1.2
F29.006	83.916	0.000	0.0	30	0.0	33	0.49	0.76	13.4	1.4
F29.007	83.782	0.000	0.0	34	0.0	35	0.50	0.76	13.4	1.6
F29.008	83.687	0.000	0.0	34	0.0	35	0.50	0.76	13.4	1.6
F2.017	83.517	0.000	0.0	107	0.0	63	0.70	0.76	13.4	4.9
F30.000	84.875	0.000	0.0	6	0.0	15	0.29	0.76	13.4	0.3
F30.001	84.681	0.000	0.0	6	0.0	15	0.29	0.76	13.4	0.3
F2.018	83.200	0.000	0.0	122	0.0	68	0.73	0.76	13.4	5.6
F2.019	82.883	0.000	0.0	130	0.0	70	0.74	0.76	13.4	6.0

Network Design Table for CGH04 - Foul Drainage.fws

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F2.020	19.025	0.143	133.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.021	19.693	0.148	133.1	0.000	1	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.000	13.709	0.420	32.6	0.000	6	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.001	12.153	0.372	32.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.002	16.705	0.512	32.6	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.003	17.435	0.534	32.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.004	37.417	1.198	31.2	0.000	3	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.005	16.928	0.542	31.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.006	21.144	0.677	31.2	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.007	20.455	0.588	34.8	0.000	5	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.008	16.043	0.461	34.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.009	15.925	0.453	35.2	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.010	18.374	0.138	133.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.011	26.366	0.198	133.2	0.000	1	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.012	32.830	0.247	132.9	0.000	2	0.0	1.500	o	150	Pipe/Conduit	⚠
F31.013	37.901	0.285	133.0	0.000	3	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.022	28.379	0.213	133.2	0.000	3	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.023	48.430	0.364	133.0	0.000	6	0.0	1.500	o	150	Pipe/Conduit	⚠
F32.000	14.607	0.187	78.1	0.000	5	0.0	1.500	o	150	Pipe/Conduit	⚠
F32.001	32.092	0.411	78.1	0.000	4	0.0	1.500	o	150	Pipe/Conduit	⚠
F32.002	9.122	0.117	78.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F32.003	10.126	0.130	77.9	0.000	5	0.0	1.500	o	150	Pipe/Conduit	⚠
F32.004	22.763	0.171	133.1	0.000	3	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.024	44.649	0.336	132.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.025	232.662	1.749	133.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.026	28.527	0.214	133.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠
F2.027	11.040	0.272	40.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	⚠

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F2.020	82.756	0.000	0.0	130	0.0	70	0.74	0.76	13.4	6.0
F2.021	82.613	0.000	0.0	131	0.0	71	0.74	0.76	13.4	6.1
F31.000	89.723	0.000	0.0	6	0.0	11	0.48	1.54	27.2	0.3
F31.001	89.303	0.000	0.0	6	0.0	11	0.48	1.54	27.1	0.3
F31.002	88.931	0.000	0.0	10	0.0	14	0.56	1.54	27.2	0.5
F31.003	88.419	0.000	0.0	10	0.0	14	0.56	1.54	27.2	0.5
F31.004	87.885	0.000	0.0	13	0.0	16	0.62	1.57	27.8	0.6
F31.005	86.687	0.000	0.0	13	0.0	16	0.62	1.57	27.8	0.6
F31.006	86.145	0.000	0.0	17	0.0	18	0.68	1.57	27.8	0.8
F31.007	85.468	0.000	0.0	22	0.0	20	0.71	1.49	26.3	1.0
F31.008	84.880	0.000	0.0	22	0.0	20	0.71	1.49	26.3	1.0
F31.009	84.418	0.000	0.0	26	0.0	22	0.74	1.48	26.2	1.2
F31.010	83.965	0.000	0.0	26	0.0	31	0.47	0.76	13.4	1.2
F31.011	83.827	0.000	0.0	27	0.0	31	0.47	0.76	13.4	1.2
F31.012	83.629	0.000	0.0	29	0.0	32	0.48	0.76	13.4	1.3
F31.013	83.382	0.000	0.0	32	0.0	34	0.50	0.76	13.4	1.5
F2.022	82.465	0.000	0.0	166	0.0	81	0.78	0.76	13.4	7.7
F2.023	82.252	0.000	0.0	172	0.0	83	0.79	0.76	13.4	8.0
F32.000	83.735	0.000	0.0	5	0.0	12	0.33	0.99	17.5	0.2
F32.001	83.548	0.000	0.0	9	0.0	16	0.40	0.99	17.5	0.4
F32.002	83.137	0.000	0.0	9	0.0	16	0.40	0.99	17.5	0.4
F32.003	83.020	0.000	0.0	14	0.0	20	0.46	0.99	17.5	0.6
F32.004	82.890	0.000	0.0	17	0.0	25	0.41	0.76	13.4	0.8
F2.024	81.888	0.000	0.0	189	0.0	88	0.81	0.76	13.4	8.7
F2.025	81.552	0.000	0.0	189	0.0	88	0.81	0.76	13.4	8.7
F2.026	79.803	0.000	0.0	189	0.0	88	0.81	0.76	13.4	8.7
F2.027	79.588	0.000	0.0	189	0.0	62	1.26	1.38	24.3	8.7

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
FSJ33520401	97.700	1.226	Open Manhole	1200	F1.000	96.474	150				
FSJ33520402	98.008	1.786	Open Manhole	1200	F1.001	96.222	150	F1.000	96.222	150	
FSJ33520403	98.189	3.355	Open Manhole	1200	F1.002	94.834	150	F1.001	94.834	150	
FSJ33520404	97.209	2.913	Open Manhole	1200	F1.003	94.296	150	F1.002	94.296	150	
FSJ33521401	94.096	1.308	Open Manhole	1200	F1.004	92.788	150	F1.003	92.788	150	
FSJ33521501	90.721	1.150	Open Manhole	1200	F1.005	89.571	150	F1.004	89.571	150	
FSJ33522601	87.361	1.100	Open Manhole	1200	F1.006	86.261	150	F1.005	86.261	150	
FSJ33522602	84.915	0.976	Open Manhole	1200	F1.007	83.939	150	F1.006	83.939	150	
FSJ33523602	84.935	1.009	Open Manhole	1200	F1.008	83.926	150	F1.007	83.926	150	
FSJ33523603	84.961	1.200	Open Manhole	1200	F1.009	83.761	150	F1.008	83.761	150	
FSJ33523604	85.036	1.348	Open Manhole	1200	F1.010	83.688	150	F1.009	83.688	150	
FSJ33523702	85.533	2.000	Open Manhole	1200	F1.011	83.533	150	F1.010	83.533	150	
FSJ33524701	83.852	1.509	Open Manhole	1500	F1.012	82.343	600	F1.011	82.793	150	
FSJ33523701	83.292	1.219	Open Manhole	1500	F1.013	82.073	600	F1.012	82.073	600	
FSJ33523801	83.385	2.463	Open Manhole	1500	F1.014	80.922	600	F1.013	80.923	600	1
FSJ33523901	83.345	3.464	Open Manhole	1500	F1.015	79.881	600	F1.014	79.881	600	
FSJ33533001	83.430	4.564	Open Manhole	0		OUTFALL		F1.015	78.866	600	
FPF1	95.740	1.000	Open Manhole	1200	F2.000	94.740	100				
FPF2	95.637	1.032	Open Manhole	1200	F2.001	94.605	100	F2.000	94.605	100	
FPF3	95.849	1.359	Open Manhole	1200	F2.002	94.490	100	F2.001	94.490	100	
FPF4	95.849	1.374	Open Manhole	1200	F2.003	94.475	100	F2.002	94.475	100	
FPF5	95.979	1.605	Open Manhole	1200	F2.004	94.374	100	F2.003	94.374	100	
FPF6	96.247	2.069	Open Manhole	1200	F2.005	94.178	100	F2.004	94.178	100	
FPF7	95.940	1.000	Open Manhole	1200	F3.000	94.940	100				
FPF8	95.980	1.175	Open Manhole	1200	F3.001	94.805	100	F3.000	94.805	100	
FPF9	96.100	1.410	Open Manhole	1200	F3.002	94.690	100	F3.001	94.690	100	
FPF10	96.100	1.425	Open Manhole	1200	F3.003	94.675	100	F3.002	94.675	100	
FPF11	96.299	2.215	Open Manhole	1200	F2.006	94.084	100	F2.005	94.084	100	
								F3.003	94.561	100	477
FPF12	96.245	1.000	Open Manhole	1200	F4.000	95.245	100				
FPF13	96.178	1.098	Open Manhole	1200	F4.001	95.080	100	F4.000	95.080	100	
FPF14	96.350	1.381	Open Manhole	1200	F4.002	94.969	100	F4.001	94.969	100	
FPF15	96.350	1.401	Open Manhole	1200	F4.003	94.949	100	F4.002	94.949	100	
FPF16	96.512	2.464	Open Manhole	1200	F2.007	94.048	100	F2.006	94.048	100	
								F4.003	94.836	100	788
FPF17	96.510	1.000	Open Manhole	1200	F5.000	95.510	100				
FPF18	96.407	1.044	Open Manhole	1200	F5.001	95.363	100	F5.000	95.363	100	
FPF19	96.600	1.321	Open Manhole	1200	F5.002	95.279	100	F5.001	95.279	100	
FPF20	96.600	1.340	Open Manhole	1200	F5.003	95.260	100	F5.002	95.261	100	1
FPF21	96.600	1.416	Open Manhole	1200	F5.004	95.184	100	F5.003	95.184	100	
FPF22	96.768	2.885	Open Manhole	1200	F2.008	93.883	100	F2.007	93.883	100	
								F5.004	95.094	100	1211
FPF23	96.827	1.000	Open Manhole	1200	F6.000	95.827	100				
FPF23b	96.827	1.048	Open Manhole	1200	F6.001	95.779	100	F6.000	95.779	100	
FPF24	96.941	3.241	Open Manhole	1200	F2.009	93.700	100	F2.008	93.700	100	
								F6.001	95.670	100	1970
FPF26	97.183	3.688	Open Manhole	1200	F2.010	93.495	150	F2.009	93.546	100	1
FPF27	95.292	1.000	Open Manhole	1200	F7.000	94.292	100				
FPF28	95.217	1.091	Open Manhole	1200	F7.001	94.126	100	F7.000	94.127	100	1
FPF29	95.400	1.385	Open Manhole	1200	F7.002	94.015	100	F7.001	94.015	100	
FPF30	95.400	1.404	Open Manhole	1200	F7.003	93.996	100	F7.002	93.996	100	
FPF31	94.950	1.000	Open Manhole	1200	F8.000	93.950	100				
FPF32	94.950	1.037	Open Manhole	1200	F8.001	93.913	100	F8.000	93.913	100	
FPF33	94.950	1.087	Open Manhole	1200	F8.002	93.863	100	F8.001	93.864	100	1

Betts Associates Limited		Page 12
6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rhosrobin, Wrexham Foul Water	
Date 01/10/2021	Designed by CP	
File CGH04 - PHASE 1 DRAINAGE CHECK ...	Checked by RA	
XP Solutions	Network 2020.1	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
FPP34	95.240	1.445	Open Manhole	1200	F8.003	93.795	100	F8.002	93.795	100	1
FPP35	95.532	1.762	Open Manhole	1200	F7.004	93.770	100	F7.003	93.771	100	
								F8.003	93.770	100	
FPP36	95.696	1.000	Open Manhole	1200	F9.000	94.696	100				1
FPP37	95.696	1.136	Open Manhole	1200	F9.001	94.560	100	F9.000	94.561	100	
FPP38	95.850	1.405	Open Manhole	1200	F9.002	94.445	100	F9.001	94.445	100	
FPP39	95.850	1.420	Open Manhole	1200	F9.003	94.430	100	F9.002	94.430	100	704
FPP40	95.897	2.297	Open Manhole	1200	F7.005	93.600	100	F7.004	93.600	100	
								F9.003	94.304	100	
FPP41	96.238	1.000	Open Manhole	1200	F10.000	95.238	100				1418
FPP42	96.141	1.061	Open Manhole	1200	F10.001	95.080	100	F10.000	95.080	100	
FPP43	96.325	1.333	Open Manhole	1200	F10.002	94.992	100	F10.001	94.992	100	
FPP44	96.435	2.992	Open Manhole	1200	F7.006	93.443	100	F7.005	93.443	100	
								F10.002	94.861	100	
FPP45	96.238	1.000	Open Manhole	1200	F11.000	95.238	100				
FPP46	96.109	1.029	Open Manhole	1200	F11.001	95.080	100	F11.000	95.080	100	1690
FPP47	96.329	1.337	Open Manhole	1200	F11.002	94.992	100	F11.001	94.992	100	
FPP48	96.552	1.634	Open Manhole	1200	F11.003	94.918	100	F11.002	94.918	100	
FPP49	96.904	3.791	Open Manhole	1200	F7.007	93.113	150	F7.006	93.163	100	341
								F11.003	94.853	100	
								F2.010	93.403	150	
FF1	96.734	3.672	Open Manhole	1200	F2.011	93.062	150	F7.007	93.063	150	1
FPP50	94.419	1.000	Open Manhole	1200	F12.000	93.419	100				
FPP51	94.543	1.169	Open Manhole	1200	F12.001	93.374	100	F12.000	93.374	100	
FPP52	94.482	1.000	Open Manhole	1200	F13.000	93.482	100				
FPP53	94.568	1.226	Open Manhole	1200	F12.002	93.342	100	F12.001	93.342	100	
								F13.000	93.342	100	
FPP54	94.100	1.000	Open Manhole	1200	F14.000	93.100	100				
FPP55	94.256	1.277	Open Manhole	1200	F12.003	92.979	100	F12.002	93.188	100	209
								F14.000	92.979	100	
FPP56	94.010	1.000	Open Manhole	1200	F15.000	93.010	100				
FPP57	94.123	1.337	Open Manhole	1200	F12.004	92.786	100	F12.003	92.786	100	
								F15.000	92.786	100	
FPP58	93.572	0.901	Open Manhole	1200	F12.005	92.671	150	F12.004	92.721	100	
FF2	93.235	1.350	Open Manhole	1200	F12.006	91.885	150	F12.005	92.610	150	725
FPP59	95.388	1.000	Open Manhole	1200	F16.000	94.388	100				
FPP60	95.387	1.135	Open Manhole	1200	F16.001	94.252	100	F16.000	94.253	100	
FPP61	95.500	1.363	Open Manhole	1200	F16.002	94.137	100	F16.001	94.137	100	1
FPP62	95.500	1.378	Open Manhole	1200	F16.003	94.122	100	F16.002	94.122	100	
FPP63	95.634	1.613	Open Manhole	1200	F16.004	94.021	100	F16.003	94.021	100	
FPP64	95.428	1.543	Open Manhole	1200	F16.005	93.885	100	F16.004	93.885	100	
FPP65	94.679	1.000	Open Manhole	1200	F17.000	93.679	100				
FPP66	94.758	1.226	Open Manhole	1200	F17.001	93.532	100	F17.000	93.532	100	
FPP67	94.843	1.396	Open Manhole	1200	F17.002	93.447	100	F17.001	93.447	100	
FPP68	94.843	1.414	Open Manhole	1200	F17.003	93.429	100	F17.002	93.429	100	
FPP69	94.843	1.490	Open Manhole	1200	F17.004	93.353	100	F17.003	93.353	100	
FPP70	95.264	1.999	Open Manhole	1200	F16.006	93.265	100	F16.005	93.860	100	595
								F17.004	93.265	100	
FPP71	94.001	1.000	Open Manhole	1200	F18.000	93.001	100				
FPP72	94.000	1.164	Open Manhole	1200	F18.001	92.836	100	F18.000	92.836	100	
FPP77	94.143	1.418	Open Manhole	1200	F18.002	92.725	100	F18.001	92.725	100	
FPP78	94.143	1.438	Open Manhole	1200	F18.003	92.705	100	F18.002	92.705	100	
FPP79	94.576	2.010	Open Manhole	1200	F16.007	92.566	100	F16.006	93.087	100	521
								F18.003	92.566	100	
FPP80	94.155	1.743	Open Manhole	1200	F16.008	92.412	150	F16.007	92.462	100	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
FF81	95.207	1.000	Open Manhole	1200	F19.000	94.207	100				
FF82	95.243	1.088	Open Manhole	1200	F19.001	94.155	100	F19.000	94.155	100	
FF83	95.138	1.085	Open Manhole	1200	F19.002	94.053	100	F19.001	94.053	100	
FF84	95.350	1.417	Open Manhole	1200	F19.003	93.933	100	F19.002	93.933	100	
FF85	95.283	1.001	Open Manhole	1200	F20.000	94.282	100				
FF86	94.803	1.007	Open Manhole	1200	F19.004	93.796	100	F19.003	93.796	100	
								F20.000	93.796	100	
FF87	94.624	1.000	Open Manhole	1200	F21.000	93.624	100				
FF88	94.709	1.148	Open Manhole	1200	F19.005	93.561	100	F19.004	93.763	100	202
								F21.000	93.561	100	
FF89	93.900	1.000	Open Manhole	1200	F22.000	92.900	100				
FF90	94.059	1.341	Open Manhole	1200	F19.006	92.718	100	F19.005	93.413	100	695
								F22.000	92.718	100	
FF3	93.749	2.374	Open Manhole	1200	F2.012	91.375	150	F2.011	91.375	150	1
								F12.006	91.376	150	954
								F16.008	92.329	150	904
								F19.006	92.329	100	
FF4	92.990	1.755	Open Manhole	1200	F23.000	91.235	150				
FF5	91.641	1.429	Open Manhole	1200	F23.001	90.212	150	F23.000	90.212	150	
FF6	91.057	1.383	Open Manhole	1200	F23.002	89.674	150	F23.001	89.674	150	
FF7	90.815	1.600	Open Manhole	1200	F23.003	89.215	150	F23.002	89.215	150	
FF8	90.571	1.783	Open Manhole	1200	F23.004	88.788	150	F23.003	88.788	150	
FF9	90.275	1.887	Open Manhole	1200	F23.005	88.388	150	F23.004	88.388	150	
FF10	90.136	1.986	Open Manhole	1200	F23.006	88.150	150	F23.005	88.150	150	
FF11	90.462	2.449	Open Manhole	1200	F23.007	88.013	150	F23.006	88.013	150	
FF91	93.874	1.000	Open Manhole	1200	F24.000	92.874	100				
FF92	93.968	1.157	Open Manhole	1200	F24.001	92.811	100	F24.000	92.812	100	1
FF93	93.364	1.000	Open Manhole	1200	F25.000	92.364	100				
FF94	93.437	1.255	Open Manhole	1200	F24.002	92.182	100	F24.001	92.663	100	481
								F25.000	92.182	100	
FF95	93.100	1.000	Open Manhole	1200	F26.000	92.100	100				
FF96	93.145	1.132	Open Manhole	1200	F26.001	92.013	100	F26.000	92.013	100	
FF97	93.145	1.182	Open Manhole	1200	F26.002	91.963	100	F26.001	91.963	100	
FF98	93.298	1.425	Open Manhole	1200	F24.003	91.873	100	F24.002	92.161	100	288
								F26.002	91.873	100	
FF100	92.235	1.000	Open Manhole	1200	F27.000	91.235	100				
FF101	92.264	1.183	Open Manhole	1200	F27.001	91.081	100	F27.000	91.081	100	
FF102	92.350	1.351	Open Manhole	1200	F27.002	90.999	100	F27.001	90.999	100	
FF103	92.350	1.369	Open Manhole	1200	F27.003	90.981	100	F27.002	90.981	100	
FF104	92.389	1.483	Open Manhole	1200	F27.004	90.906	100	F27.003	90.906	100	
FF105	92.573	1.751	Open Manhole	1200	F24.004	90.822	100	F24.003	91.680	100	858
								F27.004	90.822	100	
FF106	91.794	1.155	Open Manhole	1200	F24.005	90.639	150	F24.004	90.689	100	
FF12	91.538	3.737	Open Manhole	1200	F2.013	87.801	150	F2.012	90.129	150	2328
								F23.007	87.801	150	
								F24.005	90.130	150	2329
FF13	90.099	2.808	Open Manhole	1200	F2.014	87.291	150	F2.013	87.291	150	
FF14	89.284	2.470	Open Manhole	1200	F2.015	86.814	150	F2.014	86.814	150	
FF15	88.380	1.892	Open Manhole	1200	F28.000	86.488	150				
FF16	88.739	2.442	Open Manhole	1200	F2.016	86.297	150	F2.015	86.297	150	
								F28.000	86.297	150	
FF17	86.725	1.720	Open Manhole	1200	F29.000	85.005	150				
FF18	86.658	2.092	Open Manhole	1200	F29.001	84.566	150	F29.000	84.567	150	1
FF19	86.892	2.471	Open Manhole	1200	F29.002	84.421	150	F29.001	84.421	150	
FF20	87.071	2.756	Open Manhole	1200	F29.003	84.315	150	F29.002	84.315	150	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
FF21	87.230	3.116	Open Manhole	1200	F29.004	84.114	150	F29.003	84.114	150	
FF22	87.498	3.488	Open Manhole	1200	F29.005	84.010	150	F29.004	84.010	150	
FF23	87.655	3.739	Open Manhole	1200	F29.006	83.916	150	F29.005	83.916	150	
FF24	87.880	4.098	Open Manhole	1200	F29.007	83.782	150	F29.006	83.782	150	
FF25	88.034	4.347	Open Manhole	1200	F29.008	83.687	150	F29.007	83.687	150	
FF26	88.330	4.813	Open Manhole	1200	F2.017	83.517	150	F2.016	85.894	150	2377
								F29.008	83.517	150	
FF27	86.796	1.921	Open Manhole	1200	F30.000	84.875	150				
FF28	87.117	2.436	Open Manhole	1200	F30.001	84.681	150	F30.000	84.681	150	
FF29	87.308	4.108	Open Manhole	1200	F2.018	83.200	150	F2.017	83.200	150	
								F30.001	84.508	150	1308
FF30	86.285	3.402	Open Manhole	1200	F2.019	82.883	150	F2.018	82.883	150	
FF31	85.886	3.130	Open Manhole	1200	F2.020	82.756	150	F2.019	82.756	150	
FF32	85.432	2.819	Open Manhole	1200	F2.021	82.613	150	F2.020	82.613	150	
FF33	92.224	2.501	Open Manhole	1200	F31.000	89.723	150				
FF34	91.472	2.169	Open Manhole	1200	F31.001	89.303	150	F31.000	89.303	150	
FF35	90.898	1.967	Open Manhole	1200	F31.002	88.931	150	F31.001	88.931	150	
FF36	90.370	1.951	Open Manhole	1200	F31.003	88.419	150	F31.002	88.419	150	
FF37	89.671	1.786	Open Manhole	1200	F31.004	87.885	150	F31.003	87.885	150	
FF38	88.368	1.681	Open Manhole	1200	F31.005	86.687	150	F31.004	86.687	150	
FF39	87.737	1.592	Open Manhole	1200	F31.006	86.145	150	F31.005	86.145	150	
FF40	87.005	1.537	Open Manhole	1200	F31.007	85.468	150	F31.006	85.468	150	
FF41	86.360	1.480	Open Manhole	1200	F31.008	84.880	150	F31.007	84.880	150	
FF42	85.834	1.416	Open Manhole	1200	F31.009	84.418	150	F31.008	84.419	150	1
FF43	85.373	1.408	Open Manhole	1200	F31.010	83.965	150	F31.009	83.965	150	
FF44	85.616	1.789	Open Manhole	1200	F31.011	83.827	150	F31.010	83.827	150	
FF45	85.692	2.063	Open Manhole	1200	F31.012	83.629	150	F31.011	83.629	150	
FF46	85.344	1.962	Open Manhole	1200	F31.013	83.382	150	F31.012	83.382	150	
FF47	85.076	2.611	Open Manhole	1200	F2.022	82.465	150	F2.021	82.465	150	
								F31.013	83.097	150	632
FF48	84.829	2.577	Open Manhole	1200	F2.023	82.252	150	F2.022	82.252	150	
FF49	85.768	2.033	Open Manhole	1200	F32.000	83.735	150				
FF50	86.017	2.469	Open Manhole	1200	F32.001	83.548	150	F32.000	83.548	150	
FF51	85.480	2.343	Open Manhole	1200	F32.002	83.137	150	F32.001	83.137	150	
FF52	85.334	2.314	Open Manhole	1200	F32.003	83.020	150	F32.002	83.020	150	
FF53	85.171	2.281	Open Manhole	1200	F32.004	82.890	150	F32.003	82.890	150	
FF54	84.830	2.942	Open Manhole	1200	F2.024	81.888	150	F2.023	81.888	150	
								F32.004	82.719	150	831
FF55	85.107	3.555	Open Manhole	1200	F2.025	81.552	150	F2.024	81.552	150	
FF56	83.318	3.515	Open Manhole	1200	F2.026	79.803	150	F2.025	79.803	150	
FF57	82.048	2.460	Open Manhole	1200	F2.027	79.588	150	F2.026	79.589	150	1
FSJ33533001	83.430	4.114	Open Manhole	0		OUTFALL		F2.027	79.316	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FSJ33520401	333018.750	352478.330	333018.750	352478.330	Required	
FSJ33520402	333029.270	352485.480	333029.270	352485.480	Required	
FSJ33520403	333036.220	352490.240	333036.220	352490.240	Required	
FSJ33520404	333078.588	352436.353	333078.588	352436.353	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FSJ33521401	333129.160	352486.624	333129.160	352486.624	Required	
FSJ33521501	333185.040	352545.600	333185.040	352545.600	Required	
FSJ33522601	333240.967	352604.849	333240.967	352604.849	Required	
FSJ33522602	333294.313	352659.963	333294.313	352659.963	Required	
FSJ33523602	333300.680	352656.880	333300.680	352656.880	Required	
FSJ33523603	333317.010	352672.800	333317.010	352672.800	Required	
FSJ33523604	333318.539	352680.321	333318.539	352680.321	Required	
FSJ33523702	333357.723	352718.682	333357.723	352718.682	Required	
FSJ33524701	333404.970	352767.228	333404.970	352767.228	Required	
FSJ33523701	333398.564	352791.160	333398.564	352791.160	Required	
FSJ33523801	333364.790	352891.080	333364.790	352891.080	Required	
FSJ33523901	333351.921	352985.639	333351.921	352985.639	Required	
FSJ33533001	333331.610	353076.500			No Entry	
FPF1	333094.244	352471.523	333094.244	352471.523	Required	
FPF2	333097.692	352467.349	333097.692	352467.349	Required	
FPF3	333092.372	352462.962	333092.372	352462.962	Required	
FPF4	333091.675	352462.387	333091.675	352462.387	Required	
FPF5	333086.989	352458.523	333086.989	352458.523	Required	
FPF6	333079.497	352467.606	333079.497	352467.606	Required	
FPF7	333091.756	352475.620	333091.756	352475.620	Required	
FPF8	333088.867	352480.198	333088.867	352480.198	Required	
FPF9	333083.038	352476.513	333083.038	352476.513	Required	
FPF10	333082.275	352476.031	333082.275	352476.031	Required	
FPF11	333076.481	352472.368	333076.481	352472.368	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FPF12	333084.856	352487.126	333084.856	352487.126	Required	
FPF13	333088.088	352481.361	333088.088	352481.361	Required	
FPF14	333082.288	352478.109	333082.288	352478.109	Required	
FPF15	333081.249	352477.527	333081.249	352477.527	Required	
FPF16	333075.321	352474.203	333075.321	352474.203	Required	
FPF17	333080.516	352496.714	333080.516	352496.714	Required	
FPF18	333083.815	352491.862	333083.815	352491.862	Required	
FPF19	333079.620	352489.021	333079.620	352489.021	Required	
FPF20	333078.716	352488.409	333078.716	352488.409	Required	
FPF21	333074.958	352485.864	333074.958	352485.864	Required	
FPF22	333070.482	352482.833	333070.482	352482.833	Required	
FPF23	333070.568	352497.334	333070.568	352497.334	Required	
FPF23b	333069.119	352496.079	333069.119	352496.079	Required	
FPF24	333064.382	352491.974	333064.382	352491.974	Required	
FPF26	333058.327	352498.964	333058.327	352498.964	Required	
FPF27	333035.793	352543.689	333035.793	352543.689	Required	
FPF28	333030.121	352547.081	333030.121	352547.081	Required	
FPF29	333026.716	352541.341	333026.716	352541.341	Required	
FPF30	333026.121	352540.338	333026.121	352540.338	Required	
FPF31	333025.733	352542.637	333025.733	352542.637	Required	
FPF32	333024.968	352541.347	333024.968	352541.347	Required	
FPF33	333023.465	352538.812	333023.465	352538.812	Required	
FPF34	333021.392	352535.318	333021.392	352535.318	Required	
FPF35	333022.688	352534.549	333022.688	352534.549	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FPF36	333043.960	352539.808	333043.960	352539.808	Required	
FPF37	333039.306	352542.573	333039.306	352542.573	Required	
FPF38	333035.788	352536.642	333035.788	352536.642	Required	
FPF39	333035.328	352535.866	333035.328	352535.866	Required	
FPF40	333031.461	352529.346	333031.461	352529.346	Required	
FPF41	333052.920	352530.411	333052.920	352530.411	Required	
FPF42	333048.124	352534.535	333048.124	352534.535	Required	
FPF43	333044.704	352530.526	333044.704	352530.526	Required	
FPF44	333039.585	352524.527	333039.585	352524.527	Required	
FPF45	333054.735	352528.862	333054.735	352528.862	Required	
FPF46	333059.562	352524.776	333059.562	352524.776	Required	
FPF47	333056.141	352520.767	333056.141	352520.767	Required	
FPF48	333053.260	352517.391	333053.260	352517.391	Required	
FPF49	333052.383	352513.608	333052.383	352513.608	Required	
FF1	333058.673	352511.237	333058.673	352511.237	Required	
FPF50	333105.406	352482.522	333105.406	352482.522	Required	
FPF51	333107.133	352481.961	333107.133	352481.961	Required	
FPF52	333107.269	352484.459	333107.269	352484.459	Required	
FPF53	333108.446	352483.326	333108.446	352483.326	Required	
FPF54	333111.369	352493.368	333111.369	352493.368	Required	
FPF55	333114.868	352490.001	333114.868	352490.001	Required	
FPF56	333121.698	352499.471	333121.698	352499.471	Required	
FPF57	333122.883	352498.331	333122.883	352498.331	Required	
FPF58	333124.276	352501.976	333124.276	352501.976	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FF2	333125.421	352509.311	333125.421	352509.311	Required	
FPF59	333090.063	352505.943	333090.063	352505.943	Required	
FPF60	333086.314	352502.038	333086.314	352502.038	Required	
FPF61	333081.343	352506.817	333081.343	352506.817	Required	
FPF62	333080.692	352507.442	333080.692	352507.442	Required	
FPF63	333076.305	352511.659	333076.305	352511.659	Required	
FPF64	333079.326	352519.257	333079.326	352519.257	Required	
FPF65	333095.946	352513.524	333095.946	352513.524	Required	
FPF66	333091.890	352509.284	333091.890	352509.284	Required	
FPF67	333088.228	352512.801	333088.228	352512.801	Required	
FPF68	333087.440	352513.557	333087.440	352513.557	Required	
FPF69	333084.166	352516.700	333084.166	352516.700	Required	
FPF70	333080.370	352520.344	333080.370	352520.344	Required	
FPF71	333104.014	352521.587	333104.014	352521.587	Required	
FPF72	333099.437	352516.820	333099.437	352516.820	Required	
FPF77	333094.640	352521.425	333094.640	352521.425	Required	
FPF78	333093.781	352522.250	333093.781	352522.250	Required	
FPF79	333087.747	352528.043	333087.747	352528.043	Required	
FPF80	333092.065	352532.534	333092.065	352532.534	Required	
FPF81	333056.971	352543.438	333056.971	352543.438	Required	
FPF82	333058.439	352544.911	333058.439	352544.911	Required	
FPF83	333062.761	352549.252	333062.761	352549.252	Required	
FPF84	333067.849	352544.184	333067.849	352544.184	Required	
FPF85	333068.870	352536.307	333068.870	352536.307	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FPF86	333073.683	352538.373	333073.683	352538.373	Required	
FPF87	333073.279	352541.534	333073.279	352541.534	Required	
FPF88	333075.062	352539.757	333075.062	352539.757	Required	
FPF89	333076.185	352551.206	333076.185	352551.206	Required	
FPF90	333081.346	352546.066	333081.346	352546.066	Required	
FF3	333089.963	352543.342	333089.963	352543.342	Required	
FF4	333019.551	352561.987	333019.551	352561.987	Required	
FF5	333031.551	352583.647	333031.551	352583.647	Required	
FF6	333036.192	352595.798	333036.192	352595.798	Required	
FF7	333041.500	352605.541	333041.500	352605.541	Required	
FF8	333049.015	352616.681	333049.015	352616.681	Required	
FF9	333070.448	352606.056	333070.448	352606.056	Required	
FF10	333083.088	352599.584	333083.088	352599.584	Required	
FF11	333094.323	352585.295	333094.323	352585.295	Required	
FPF91	333081.026	352549.285	333081.026	352549.285	Required	
FPF92	333082.796	352547.522	333082.796	352547.522	Required	
FPF93	333083.933	352558.957	333083.933	352558.957	Required	
FPF94	333089.081	352553.830	333089.081	352553.830	Required	
FPF95	333081.545	352563.098	333081.545	352563.098	Required	
FPF96	333084.003	352560.649	333084.003	352560.649	Required	
FPF97	333086.120	352558.541	333086.120	352558.541	Required	
FPF98	333089.961	352554.714	333089.961	352554.714	Required	
FPF100	333091.145	352578.108	333091.145	352578.108	Required	
FPF101	333086.891	352573.661	333086.891	352573.661	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FPP102	333090.471	352570.266	333090.471	352570.266	Required	
FPP103	333091.230	352569.511	333091.230	352569.511	Required	
FPP104	333094.477	352566.405	333094.477	352566.405	Required	
FPP105	333098.128	352562.913	333098.128	352562.913	Required	
FPP106	333103.627	352568.662	333103.627	352568.662	Required	
FF12	333114.459	352565.604	333114.459	352565.604	Required	
FF13	333129.013	352581.541	333129.013	352581.541	Required	
FF14	333138.753	352599.228	333138.753	352599.228	Required	
FF15	333168.198	352608.110	333168.198	352608.110	Required	
FF16	333145.746	352619.977	333145.746	352619.977	Required	
FF17	333122.884	352715.458	333122.884	352715.458	Required	
FF18	333110.724	352722.639	333110.724	352722.639	Required	
FF19	333100.021	352706.607	333100.021	352706.607	Required	
FF20	333093.562	352694.080	333093.562	352694.080	Required	
FF21	333080.154	352670.933	333080.154	352670.933	Required	
FF22	333091.996	352663.740	333091.996	352663.740	Required	
FF23	333103.398	352658.455	333103.398	352658.455	Required	
FF24	333119.008	352649.891	333119.008	352649.891	Required	
FF25	333129.725	352643.285	333129.725	352643.285	Required	
FF26	333151.157	352636.028	333151.157	352636.028	Required	
FF27	333204.606	352649.725	333204.606	352649.725	Required	
FF28	333185.845	352667.441	333185.845	352667.441	Required	
FF29	333164.572	352676.043	333164.572	352676.043	Required	
FF30	333177.941	352715.966	333177.941	352715.966	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FF31	333186.670	352730.391	333186.670	352730.391	Required	
FF32	333200.744	352743.192	333200.744	352743.192	Required	
FF33	333151.952	352521.303	333151.952	352521.303	Required	
FF34	333161.378	352531.257	333161.378	352531.257	Required	
FF35	333168.705	352540.953	333168.705	352540.953	Required	
FF36	333180.383	352552.898	333180.383	352552.898	Required	
FF37	333193.256	352564.656	333193.256	352564.656	Required	
FF38	333219.357	352591.467	333219.357	352591.467	Required	
FF39	333229.392	352605.100	333229.392	352605.100	Required	
FF40	333244.444	352619.950	333244.444	352619.950	Required	
FF41	333260.003	352633.228	333260.003	352633.228	Required	
FF42	333269.227	352646.355	333269.227	352646.355	Required	
FF43	333280.023	352658.062	333280.023	352658.062	Required	
FF44	333266.642	352670.655	333266.642	352670.655	Required	
FF45	333246.234	352687.348	333246.234	352687.348	Required	
FF46	333234.707	352718.089	333234.707	352718.089	Required	
FF47	333218.242	352752.226	333218.242	352752.226	Required	
FF48	333211.393	352779.766	333211.393	352779.766	Required	
FF49	333154.594	352766.526	333154.594	352766.526	Required	
FF50	333141.828	352773.626	333141.828	352773.626	Required	
FF51	333157.927	352801.387	333157.927	352801.387	Required	
FF52	333163.366	352808.710	333163.366	352808.710	Required	
FF53	333171.552	352814.671	333171.552	352814.671	Required	
FF54	333192.208	352824.235	333192.208	352824.235	Required	

Manhole Schedules for CGH04 - Foul Drainage.fws

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
FF55	333174.402	352865.180	333174.402	352865.180	Required	
FF56	333296.684	353063.116	333296.684	353063.116	Required	
FF57	333324.826	353067.790	333324.826	353067.790	Required	
FSJ33533001	333331.610	353076.500			No Entry	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F1.000	FSJ33520401	1200		333018.750	352478.330	333018.750	352478.330	
F1.001	FSJ33520402	1200		333029.270	352485.480	333029.270	352485.480	
F1.002	FSJ33520403	1200		333036.220	352490.240	333036.220	352490.240	
F1.003	FSJ33520404	1200		333078.588	352436.353	333078.588	352436.353	
F1.004	FSJ33521401	1200		333129.160	352486.624	333129.160	352486.624	
F1.005	FSJ33521501	1200		333185.040	352545.600	333185.040	352545.600	
F1.006	FSJ33522601	1200		333240.967	352604.849	333240.967	352604.849	
F1.007	FSJ33522602	1200		333294.313	352659.963	333294.313	352659.963	
F1.008	FSJ33523602	1200		333300.680	352656.880	333300.680	352656.880	
F1.009	FSJ33523603	1200		333317.010	352672.800	333317.010	352672.800	
F1.010	FSJ33523604	1200		333318.539	352680.321	333318.539	352680.321	
F1.011	FSJ33523702	1200		333357.723	352718.682	333357.723	352718.682	
F1.012	FSJ33524701	1500		333404.970	352767.228	333404.970	352767.228	
F1.013	FSJ33523701	1500		333398.564	352791.160	333398.564	352791.160	
F1.014	FSJ33523801	1500		333364.790	352891.080	333364.790	352891.080	
F1.015	FSJ33523901	1500		333351.921	352985.639	333351.921	352985.639	
F2.000	FPP1	1200		333094.244	352471.523	333094.244	352471.523	
F2.001	FPP2	1200		333097.692	352467.349	333097.692	352467.349	
F2.002	FPP3	1200		333092.372	352462.962	333092.372	352462.962	
F2.003	FPP4	1200		333091.675	352462.387	333091.675	352462.387	
F2.004	FPP5	1200		333086.989	352458.523	333086.989	352458.523	
F2.005	FPP6	1200		333079.497	352467.606	333079.497	352467.606	
F3.000	FPP7	1200		333091.756	352475.620	333091.756	352475.620	
F3.001	FPP8	1200		333088.867	352480.198	333088.867	352480.198	
F3.002	FPP9	1200		333083.038	352476.513	333083.038	352476.513	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F3.003	FPP10	1200		333082.275	352476.031	333082.275	352476.031	
F2.006	FPP11	1200		333076.481	352472.368	333076.481	352472.368	
F4.000	FPP12	1200		333084.856	352487.126	333084.856	352487.126	
F4.001	FPP13	1200		333088.088	352481.361	333088.088	352481.361	
F4.002	FPP14	1200		333082.288	352478.109	333082.288	352478.109	
F4.003	FPP15	1200		333081.249	352477.527	333081.249	352477.527	
F2.007	FPP16	1200		333075.321	352474.203	333075.321	352474.203	
F5.000	FPP17	1200		333080.516	352496.714	333080.516	352496.714	
F5.001	FPP18	1200		333083.815	352491.862	333083.815	352491.862	
F5.002	FPP19	1200		333079.620	352489.021	333079.620	352489.021	
F5.003	FPP20	1200		333078.716	352488.409	333078.716	352488.409	
F5.004	FPP21	1200		333074.958	352485.864	333074.958	352485.864	
F2.008	FPP22	1200		333070.482	352482.833	333070.482	352482.833	
F6.000	FPP23	1200		333070.568	352497.334	333070.568	352497.334	
F6.001	FPP23b	1200		333069.119	352496.079	333069.119	352496.079	
F2.009	FPP24	1200		333064.382	352491.974	333064.382	352491.974	
F2.010	FPP26	1200		333058.327	352498.964	333058.327	352498.964	
F7.000	FPP27	1200		333035.793	352543.689	333035.793	352543.689	
F7.001	FPP28	1200		333030.121	352547.081	333030.121	352547.081	
F7.002	FPP29	1200		333026.716	352541.341	333026.716	352541.341	
F7.003	FPP30	1200		333026.121	352540.338	333026.121	352540.338	
F8.000	FPP31	1200		333025.733	352542.637	333025.733	352542.637	
F8.001	FPP32	1200		333024.968	352541.347	333024.968	352541.347	
F8.002	FPP33	1200		333023.465	352538.812	333023.465	352538.812	
F8.003	FPP34	1200		333021.392	352535.318	333021.392	352535.318	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F7.004	FPP35	1200		333022.688	352534.549	333022.688	352534.549	
F9.000	FPP36	1200		333043.960	352539.808	333043.960	352539.808	
F9.001	FPP37	1200		333039.306	352542.573	333039.306	352542.573	
F9.002	FPP38	1200		333035.788	352536.642	333035.788	352536.642	
F9.003	FPP39	1200		333035.328	352535.866	333035.328	352535.866	
F7.005	FPP40	1200		333031.461	352529.346	333031.461	352529.346	
F10.000	FPP41	1200		333052.920	352530.411	333052.920	352530.411	
F10.001	FPP42	1200		333048.124	352534.535	333048.124	352534.535	
F10.002	FPP43	1200		333044.704	352530.526	333044.704	352530.526	
F7.006	FPP44	1200		333039.585	352524.527	333039.585	352524.527	
F11.000	FPP45	1200		333054.735	352528.862	333054.735	352528.862	
F11.001	FPP46	1200		333059.562	352524.776	333059.562	352524.776	
F11.002	FPP47	1200		333056.141	352520.767	333056.141	352520.767	
F11.003	FPP48	1200		333053.260	352517.391	333053.260	352517.391	
F7.007	FPP49	1200		333052.383	352513.608	333052.383	352513.608	
F2.011	FF1	1200		333058.673	352511.237	333058.673	352511.237	
F12.000	FPP50	1200		333105.406	352482.522	333105.406	352482.522	
F12.001	FPP51	1200		333107.133	352481.961	333107.133	352481.961	
F13.000	FPP52	1200		333107.269	352484.459	333107.269	352484.459	
F12.002	FPP53	1200		333108.446	352483.326	333108.446	352483.326	
F14.000	FPP54	1200		333111.369	352493.368	333111.369	352493.368	
F12.003	FPP55	1200		333114.868	352490.001	333114.868	352490.001	
F15.000	FPP56	1200		333121.698	352499.471	333121.698	352499.471	
F12.004	FPP57	1200		333122.883	352498.331	333122.883	352498.331	
F12.005	FPP58	1200		333124.276	352501.976	333124.276	352501.976	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F12.006	FF2	1200		333125.421	352509.311	333125.421	352509.311	
F16.000	FPF59	1200		333090.063	352505.943	333090.063	352505.943	
F16.001	FPF60	1200		333086.314	352502.038	333086.314	352502.038	
F16.002	FPF61	1200		333081.343	352506.817	333081.343	352506.817	
F16.003	FPF62	1200		333080.692	352507.442	333080.692	352507.442	
F16.004	FPF63	1200		333076.305	352511.659	333076.305	352511.659	
F16.005	FPF64	1200		333079.326	352519.257	333079.326	352519.257	
F17.000	FPF65	1200		333095.946	352513.524	333095.946	352513.524	
F17.001	FPF66	1200		333091.890	352509.284	333091.890	352509.284	
F17.002	FPF67	1200		333088.228	352512.801	333088.228	352512.801	
F17.003	FPF68	1200		333087.440	352513.557	333087.440	352513.557	
F17.004	FPF69	1200		333084.166	352516.700	333084.166	352516.700	
F16.006	FPF70	1200		333080.370	352520.344	333080.370	352520.344	
F18.000	FPF71	1200		333104.014	352521.587	333104.014	352521.587	
F18.001	FPF72	1200		333099.437	352516.820	333099.437	352516.820	
F18.002	FPF77	1200		333094.640	352521.425	333094.640	352521.425	
F18.003	FPF78	1200		333093.781	352522.250	333093.781	352522.250	
F16.007	FPF79	1200		333087.747	352528.043	333087.747	352528.043	
F16.008	FPF80	1200		333092.065	352532.534	333092.065	352532.534	
F19.000	FPF81	1200		333056.971	352543.438	333056.971	352543.438	
F19.001	FPF82	1200		333058.439	352544.911	333058.439	352544.911	
F19.002	FPF83	1200		333062.761	352549.252	333062.761	352549.252	
F19.003	FPF84	1200		333067.849	352544.184	333067.849	352544.184	
F20.000	FPF85	1200		333068.870	352536.307	333068.870	352536.307	
F19.004	FPF86	1200		333073.683	352538.373	333073.683	352538.373	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F21.000	FPF87	1200		333073.279	352541.534	333073.279	352541.534	
F19.005	FPF88	1200		333075.062	352539.757	333075.062	352539.757	
F22.000	FPF89	1200		333076.185	352551.206	333076.185	352551.206	
F19.006	FPF90	1200		333081.346	352546.066	333081.346	352546.066	
F2.012	FF3	1200		333089.963	352543.342	333089.963	352543.342	
F23.000	FF4	1200		333019.551	352561.987	333019.551	352561.987	
F23.001	FF5	1200		333031.551	352583.647	333031.551	352583.647	
F23.002	FF6	1200		333036.192	352595.798	333036.192	352595.798	
F23.003	FF7	1200		333041.500	352605.541	333041.500	352605.541	
F23.004	FF8	1200		333049.015	352616.681	333049.015	352616.681	
F23.005	FF9	1200		333070.448	352606.056	333070.448	352606.056	
F23.006	FF10	1200		333083.088	352599.584	333083.088	352599.584	
F23.007	FF11	1200		333094.323	352585.295	333094.323	352585.295	
F24.000	FPF91	1200		333081.026	352549.285	333081.026	352549.285	
F24.001	FPF92	1200		333082.796	352547.522	333082.796	352547.522	
F25.000	FPF93	1200		333083.933	352558.957	333083.933	352558.957	
F24.002	FPF94	1200		333089.081	352553.830	333089.081	352553.830	
F26.000	FPF95	1200		333081.545	352563.098	333081.545	352563.098	
F26.001	FPF96	1200		333084.003	352560.649	333084.003	352560.649	
F26.002	FPF97	1200		333086.120	352558.541	333086.120	352558.541	
F24.003	FPF98	1200		333089.961	352554.714	333089.961	352554.714	
F27.000	FPF100	1200		333091.145	352578.108	333091.145	352578.108	
F27.001	FPF101	1200		333086.891	352573.661	333086.891	352573.661	
F27.002	FPF102	1200		333090.471	352570.266	333090.471	352570.266	
F27.003	FPF103	1200		333091.230	352569.511	333091.230	352569.511	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F27.004	FF104	1200		333094.477	352566.405	333094.477	352566.405	
F24.004	FF105	1200		333098.128	352562.913	333098.128	352562.913	
F24.005	FF106	1200		333103.627	352568.662	333103.627	352568.662	
F2.013	FF12	1200		333114.459	352565.604	333114.459	352565.604	
F2.014	FF13	1200		333129.013	352581.541	333129.013	352581.541	
F2.015	FF14	1200		333138.753	352599.228	333138.753	352599.228	
F28.000	FF15	1200		333168.198	352608.110	333168.198	352608.110	
F2.016	FF16	1200		333145.746	352619.977	333145.746	352619.977	
F29.000	FF17	1200		333122.884	352715.458	333122.884	352715.458	
F29.001	FF18	1200		333110.724	352722.639	333110.724	352722.639	
F29.002	FF19	1200		333100.021	352706.607	333100.021	352706.607	
F29.003	FF20	1200		333093.562	352694.080	333093.562	352694.080	
F29.004	FF21	1200		333080.154	352670.933	333080.154	352670.933	
F29.005	FF22	1200		333091.996	352663.740	333091.996	352663.740	
F29.006	FF23	1200		333103.398	352658.455	333103.398	352658.455	
F29.007	FF24	1200		333119.008	352649.891	333119.008	352649.891	
F29.008	FF25	1200		333129.725	352643.285	333129.725	352643.285	
F2.017	FF26	1200		333151.157	352636.028	333151.157	352636.028	
F30.000	FF27	1200		333204.606	352649.725	333204.606	352649.725	
F30.001	FF28	1200		333185.845	352667.441	333185.845	352667.441	
F2.018	FF29	1200		333164.572	352676.043	333164.572	352676.043	
F2.019	FF30	1200		333177.941	352715.966	333177.941	352715.966	
F2.020	FF31	1200		333186.670	352730.391	333186.670	352730.391	
F2.021	FF32	1200		333200.744	352743.192	333200.744	352743.192	
F31.000	FF33	1200		333151.952	352521.303	333151.952	352521.303	

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
F31.001	FF34	1200		333161.378	352531.257	333161.378	352531.257	
F31.002	FF35	1200		333168.705	352540.953	333168.705	352540.953	
F31.003	FF36	1200		333180.383	352552.898	333180.383	352552.898	
F31.004	FF37	1200		333193.256	352564.656	333193.256	352564.656	
F31.005	FF38	1200		333219.357	352591.467	333219.357	352591.467	
F31.006	FF39	1200		333229.392	352605.100	333229.392	352605.100	
F31.007	FF40	1200		333244.444	352619.950	333244.444	352619.950	
F31.008	FF41	1200		333260.003	352633.228	333260.003	352633.228	
F31.009	FF42	1200		333269.227	352646.355	333269.227	352646.355	
F31.010	FF43	1200		333280.023	352658.062	333280.023	352658.062	
F31.011	FF44	1200		333266.642	352670.655	333266.642	352670.655	
F31.012	FF45	1200		333246.234	352687.348	333246.234	352687.348	
F31.013	FF46	1200		333234.707	352718.089	333234.707	352718.089	
F2.022	FF47	1200		333218.242	352752.226	333218.242	352752.226	
F2.023	FF48	1200		333211.393	352779.766	333211.393	352779.766	
F32.000	FF49	1200		333154.594	352766.526	333154.594	352766.526	
F32.001	FF50	1200		333141.828	352773.626	333141.828	352773.626	
F32.002	FF51	1200		333157.927	352801.387	333157.927	352801.387	
F32.003	FF52	1200		333163.366	352808.710	333163.366	352808.710	
F32.004	FF53	1200		333171.552	352814.671	333171.552	352814.671	
F2.024	FF54	1200		333192.208	352824.235	333192.208	352824.235	
F2.025	FF55	1200		333174.402	352865.180	333174.402	352865.180	
F2.026	FF56	1200		333296.684	353063.116	333296.684	353063.116	
F2.027	FF57	1200		333324.826	353067.790	333324.826	353067.790	

Betts Associates Limited		Page 30
6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rhosrobin, Wrexham Foul Water	
Date 01/10/2021	Designed by CP	
File CGH04 - PHASE 1 DRAINAGE CHECK ...	Checked by RA	
XP Solutions		Network 2020.1

Setting Out Information - True Coordinates (CGH04 - Foul Drainage.fws)

PN	DSMH Name	Dia/Len (mm)	Width (mm)	DS Easting (m)	DS Northing (m)	Layout (North)
F1.015	FSJ33533001	0		333331.610	353076.500	
F2.027	FSJ33533001	0		333331.610	353076.500	

Free Flowing Outfall Details for CGH04 - Foul Drainage.fws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F1.015	FSJ33533001	83.430	78.866	0.000	0	0

Free Flowing Outfall Details for CGH04 - Foul Drainage.fws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F2.027	FSJ33533001	83.430	79.316	0.000	0	0

Surface Water System Details

Network Design Table and Results

Manhole Schedules

Pipeline Schedules

Setting Out Information

Area Summary

Online Controls

Storage Structures

Simulation

Simulation Results for the 100yr Return Period + 40% Climate Change

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 6

Pipe Sizes STANDARD

Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)

1

Foul Sewage (l/s/ha)

0.000

Maximum Backdrop Height (m)

1.500

M5-60 (mm)

18.000

Volumetric Runoff Coeff.

0.750

Min Design Depth for Optimisation (m)

1.200

Ratio R

0.316

PIMP (%)

100

Min Vel for Auto Design only (m/s)

1.00

Maximum Rainfall (mm/hr)

50

Add Flow / Climate Change (%)

0

Min Slope for Optimisation (1:X)

500

Maximum Time of Concentration (mins)

30

Minimum Backdrop Height (m)

0.200

Designed with Level Soffits

Network Design Table for Surface Network 6

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	20.293	0.676	30.0	0.057	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	13.232	0.558	23.7	0.054	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	10.954	0.110	100.0	0.018	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	13.977	0.140	100.0	0.067	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.004	39.149	0.435	90.0	0.091	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.005	21.808	0.242	90.1	0.126	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.006	29.256	0.325	90.0	0.029	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	53.899	0.539	100.0	0.197	5.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	51.683	2.678	19.3	0.230	5.00	0.0	0.600	o	300	Pipe/Conduit	
2.001	32.883	0.329	100.0	0.129	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.007	17.951	0.449	40.0	0.051	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.008	24.246	0.606	40.0	0.092	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.009	17.681	0.442	40.0	0.074	0.00	0.0	0.600	o	450	Pipe/Conduit	
4.000	22.562	0.135	167.0	0.082	5.00	0.0	0.600	o	225	Pipe/Conduit	
4.001	24.367	0.102	238.0	0.033	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.010	21.542	0.876	24.6	0.064	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.000	14.240	0.086	165.6	0.079	5.00	0.0	0.600	o	225	Pipe/Conduit	
5.001	18.859	0.113	166.9	0.101	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	43.19	5.18	90.561	0.057	0.0	0.0	0.0	1.84	32.6	6.7
1.001	42.92	5.27	89.810	0.111	0.0	0.0	0.0	2.70	107.3	12.9
1.002	42.46	5.40	89.252	0.129	0.0	0.0	0.0	1.31	52.0	14.8
1.003	41.89	5.58	89.142	0.196	0.0	0.0	0.0	1.31	52.0	22.2
1.004	40.69	5.98	88.133	0.287	0.0	0.0	0.0	1.66	117.2	31.6
1.005	40.06	6.20	87.698	0.413	0.0	0.0	0.0	1.66	117.1	44.8
1.006	39.25	6.49	87.455	0.442	0.0	0.0	0.0	1.66	117.2	47.0
2.000	41.92	5.57	91.615	0.197	0.0	0.0	0.0	1.57	111.1	22.4
3.000	43.00	5.24	92.852	0.230	0.0	0.0	0.0	3.60	254.1	26.8
2.001	40.86	5.92	90.115	0.556	0.0	0.0	0.0	1.57	111.1	61.5
1.007	39.00	6.58	86.980	1.049	0.0	0.0	0.0	3.22	512.6	110.8
1.008	38.67	6.71	86.535	1.141	0.0	0.0	0.0	3.22	512.4	119.5
1.009	38.44	6.80	85.934	1.215	0.0	0.0	0.0	3.22	512.4	126.5
4.000	42.56	5.37	86.975	0.082	0.0	0.0	0.0	1.01	40.1	9.5
4.001	41.30	5.77	86.765	0.115	0.0	0.0	0.0	1.01	71.7	12.9
1.010	38.21	6.89	85.496	1.394	0.0	0.0	0.0	4.11	654.2	144.3
5.000	43.02	5.23	85.403	0.079	0.0	0.0	0.0	1.01	40.3	9.2
5.001	42.00	5.55	85.317	0.180	0.0	0.0	0.0	1.01	40.1	20.5

Network Design Table for Surface Network 6												
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section	Type	Auto Design
5.002	13.831	0.059	234.4	0.025	0.00	0.0	0.600	o	300	Pipe/Conduit		
5.003	22.490	0.095	236.7	0.052	0.00	0.0	0.600	o	300	Pipe/Conduit		
5.004	13.216	0.034	388.7	0.099	0.00	0.0	0.600	o	450	Pipe/Conduit		
5.005	12.505	0.032	390.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
5.006	17.637	0.045	391.9	0.070	0.00	0.0	0.600	o	450	Pipe/Conduit		
5.007	13.761	0.035	393.2	0.054	0.00	0.0	0.600	o	450	Pipe/Conduit		
5.008	22.508	0.059	381.5	0.008	0.00	0.0	0.600	o	525	Pipe/Conduit		
1.011	37.163	1.004	37.0	0.032	0.00	0.0	0.600	o	675	Pipe/Conduit		
6.000	24.667	0.148	166.7	0.123	5.00	0.0	0.600	o	225	Pipe/Conduit		
6.001	18.205	0.109	167.0	0.008	0.00	0.0	0.600	o	225	Pipe/Conduit		
1.012	46.756	0.615	76.0	0.136	0.00	0.0	0.600	o	675	Pipe/Conduit		
1.013	16.758	0.220	76.2	0.054	0.00	0.0	0.600	o	675	Pipe/Conduit		
1.014	18.305	0.241	76.0	0.039	0.00	0.0	0.600	o	675	Pipe/Conduit		
1.015	28.258	0.188	150.3	0.157	0.00	0.0	0.600	o	675	Pipe/Conduit		
7.000	12.952	0.648	20.0	0.061	5.00	0.0	0.600	o	225	Pipe/Conduit		
7.001	12.537	0.627	20.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
7.002	15.894	0.795	20.0	0.044	0.00	0.0	0.600	o	225	Pipe/Conduit		
7.003	18.044	0.827	21.8	0.018	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.004	37.769	1.152	32.8	0.058	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.005	17.059	0.520	32.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.006	20.497	0.625	32.8	0.066	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.007	20.900	0.638	32.8	0.078	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.008	16.105	0.491	32.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.009	22.309	0.680	32.8	0.096	0.00	0.0	0.600	o	300	Pipe/Conduit		
7.010	49.602	0.321	154.5	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
7.011	60.501	0.392	154.3	0.094	0.00	0.0	0.600	o	450	Pipe/Conduit		
1.016	77.703	0.195	398.5	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		
8.000	15.616	0.156	100.0	0.017	5.00	0.0	0.600	o	150	Pipe/Conduit		
8.001	14.594	0.146	100.0	0.085	0.00	0.0	0.600	o	150	Pipe/Conduit		
Network Results Table												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
5.002	41.30	5.77	85.129	0.205	0.0	0.0	0.0	1.02	72.3	22.9		
5.003	40.22	6.14	85.070	0.257	0.0	0.0	0.0	1.02	71.9	28.0		
5.004	39.62	6.35	84.825	0.356	0.0	0.0	0.0	1.03	163.0	38.2		
5.005	39.07	6.56	84.791	0.356	0.0	0.0	0.0	1.02	162.6	38.2		
5.006	38.32	6.85	84.759	0.426	0.0	0.0	0.0	1.02	162.4	44.2		
5.007	37.76	7.07	84.714	0.480	0.0	0.0	0.0	1.02	162.1	49.1		
5.008	36.97	7.40	84.604	0.488	0.0	0.0	0.0	1.14	246.9	49.1		
1.011	36.64	7.54	84.395	1.914	0.0	0.0	0.0	4.32	1544.7	189.9		
6.000	42.45	5.41	85.120	0.123	0.0	0.0	0.0	1.01	40.2	14.1		
6.001	41.50	5.71	84.972	0.131	0.0	0.0	0.0	1.01	40.1	14.7		
1.012	36.06	7.80	83.391	2.181	0.0	0.0	0.0	3.01	1076.4	213.0		
1.013	35.86	7.90	82.776	2.235	0.0	0.0	0.0	3.01	1075.4	217.0		
1.014	35.64	8.00	82.556	2.274	0.0	0.0	0.0	3.01	1076.9	219.5		
1.015	35.17	8.22	82.315	2.431	0.0	0.0	0.0	2.14	764.2	231.6		
7.000	43.57	5.07	90.294	0.061	0.0	0.0	0.0	2.94	116.9	7.2		
7.001	43.32	5.14	89.646	0.061	0.0	0.0	0.0	2.94	116.9	7.2		
7.002	43.02	5.23	89.019	0.105	0.0	0.0	0.0	2.94	116.9	12.2		
7.003	42.72	5.32	88.149	0.123	0.0	0.0	0.0	3.38	239.0	14.2		
7.004	41.98	5.55	87.322	0.181	0.0	0.0	0.0	2.76	194.8	20.6		
7.005	41.66	5.66	86.170	0.181	0.0	0.0	0.0	2.76	194.8	20.6		
7.006	41.28	5.78	85.649	0.247	0.0	0.0	0.0	2.76	194.7	27.6		
7.007	40.90	5.91	85.024	0.325	0.0	0.0	0.0	2.76	194.9	36.0		
7.008	40.61	6.00	84.386	0.325	0.0	0.0	0.0	2.75	194.7	36.0		
7.009	40.22	6.14	83.895	0.421	0.0	0.0	0.0	2.75	194.7	45.9		
7.010	38.84	6.64	83.065	0.421	0.0	0.0	0.0	1.63	259.7	45.9		
7.011	37.30	7.26	82.744	0.515	0.0	0.0	0.0	1.63	259.9	52.0		
1.016	33.37	9.15	82.052	2.946	0.0	0.0	0.0	1.40	616.6	266.2		
8.000	42.94	5.26	84.222	0.017	0.0	0.0	0.0	1.00	17.8	2.0		
8.001	42.15	5.50	84.066	0.102	0.0	0.0	0.0	1.00	17.8	11.6		

Network Design Table for Surface Network 6												
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design	
8.002	30.707	0.390	78.8	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit		
8.003	8.300	0.055	150.0	0.009	0.00	0.0	0.600	o	300	Pipe/Conduit		
8.004	9.674	0.064	150.0	0.045	0.00	0.0	0.600	o	300	Pipe/Conduit		
8.005	18.297	0.122	150.0	0.021	0.00	0.0	0.600	o	300	Pipe/Conduit		
8.006	11.752	0.078	150.7	0.112	0.00	0.0	0.600	o	300	Pipe/Conduit		
1.017	123.270	0.309	398.9	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		
1.018	47.930	0.120	399.4	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		
1.019	54.608	0.137	398.6	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		
1.020	44.013	0.111	396.5	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		

Network Results Table												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
8.002	41.25	5.79	83.770	0.190	0.0	0.0	0.0	1.77	125.3	21.2		
8.003	40.92	5.90	83.380	0.199	0.0	0.0	0.0	1.28	90.6	22.1		
8.004	40.55	6.02	83.325	0.244	0.0	0.0	0.0	1.28	90.6	26.8		
8.005	39.88	6.26	83.260	0.265	0.0	0.0	0.0	1.28	90.6	28.6		
8.006	39.45	6.41	83.138	0.377	0.0	0.0	0.0	1.28	90.4	40.3		
1.017	30.92	10.62	81.857	3.323	0.0	0.0	0.0	1.39	616.2	278.3		
1.018	30.08	11.19	81.548	3.323	0.0	0.0	0.0	1.39	615.9	278.3		
1.019	29.18	11.84	81.428	3.323	0.0	0.0	0.0	1.40	616.5	278.3		
1.020	28.51	12.37	81.291	3.323	0.0	0.0	0.0	1.40	618.1	278.3		

Manhole Schedules for Surface Network 6											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S4	92.647	2.086	Open Manhole	1200	1.000	90.561	150				
S5	91.555	1.745	Open Manhole	1200	1.001	89.810	225	1.000	89.885	150	
S6	90.990	1.738	Open Manhole	1200	1.002	89.252	225	1.001	89.252	225	
S7	90.797	1.655	Open Manhole	1200	1.003	89.142	225	1.002	89.142	225	
S8	90.465	2.332	Open Manhole	1350	1.004	88.133	300	1.003	89.003	225	795
S9	90.121	2.423	Open Manhole	1350	1.005	87.698	300	1.004	87.698	300	
S10	90.517	3.062	Open Manhole	1350	1.006	87.455	300	1.005	87.456	300	1
S2	93.313	1.698	Open Manhole	1200	2.000	91.615	300				
S1	96.985	4.133	Open Manhole	1200	3.000	92.852	300				
S3	93.577	3.462	Open Manhole	1200	2.001	90.115	300	2.000	91.076	300	961
								3.000	90.174	300	59
S11	91.380	4.400	Open Manhole	1350	1.007	86.980	450	1.006	87.130	300	2656
								2.001	89.786	300	
S12	90.190	3.659	Open Manhole	1350	1.008	86.535	450	1.007	86.531	450	
S13	89.235	3.306	Open Manhole	1350	1.009	85.934	450	1.008	85.929	450	
S14	88.668	1.693	Open Manhole	1200	4.000	86.975	225				
S15	88.391	1.626	Open Manhole	1200	4.001	86.765	300	4.000	86.840	225	
S16	88.814	3.322	Open Manhole	1350	1.010	85.496	450	1.009	85.492	450	
								4.001	86.663	300	1017
S17	86.826	1.423	Open Manhole	1200	5.000	85.403	225				
S18	86.681	1.364	Open Manhole	1350	5.001	85.317	225	5.000	85.317	225	
S19	86.924	1.795	Open Manhole	1350	5.002	85.129	300	5.001	85.204	225	
S20	87.093	2.023	Open Manhole	1350	5.003	85.070	300	5.002	85.070	300	
S21	87.338	2.513	Open Manhole	1350	5.004	84.825	450	5.003	84.975	300	
S22	87.525	2.734	Open Manhole	1350	5.005	84.791	450	5.004	84.791	450	
S23	87.678	2.919	Open Manhole	1350	5.006	84.759	450	5.005	84.759	450	
S24	87.901	3.187	Open Manhole	1350	5.007	84.714	450	5.006	84.714	450	
S25	88.087	3.483	Open Manhole	1350	5.008	84.604	525	5.007	84.679	450	
S26	88.285	3.890	Open Manhole	1500	1.011	84.395	675	1.010	84.620	450	
								5.008	84.545	525	
S27	86.825	1.705	Open Manhole	1200	6.000	85.120	225				
S28	87.141	2.169	Open Manhole	1200	6.001	84.972	225	6.000	84.972	225	
S29	87.386	3.995	Open Manhole	1500	1.012	83.391	675	1.011	83.391	675	
								6.001	84.863	225	1022
S30	86.254	3.478	Open Manhole	1500	1.013	82.776	675	1.012	82.776	675	
S31	85.857	3.301	Open Manhole	1500	1.014	82.556	675	1.013	82.556	675	
S32	85.411	3.096	Open Manhole	1500	1.015	82.315	675	1.014	82.315	675	
S33	92.069	1.775	Open Manhole	1200	7.000	90.294	225				
S34	91.372	1.726	Open Manhole	1200	7.001	89.646	225	7.000	89.646	225	
S35	90.798	1.779	Open Manhole	1200	7.002	89.019	225	7.001	89.019	225	
S36	90.304	2.155	Open Manhole	1200	7.003	88.149	300	7.002	88.224	225	
S37	89.598	2.276	Open Manhole	1200	7.004	87.322	300	7.003	87.322	300	
S38	88.279	2.109	Open Manhole	1200	7.005	86.170	300	7.004	86.170	300	
S39	87.646	1.997	Open Manhole	1200	7.006	85.649	300	7.005	85.649	300	
S40	86.933	1.909	Open Manhole	1200	7.007	85.024	300	7.006	85.024	300	
S41	86.261	1.875	Open Manhole	1200	7.008	84.386	300	7.007	84.386	300	
S42	85.758	1.863	Open Manhole	1200	7.009	83.895	300	7.008	83.895	300	
S43	85.167	2.102	Open Manhole	1500	7.010	83.065	450	7.009	83.215	300	
S44	85.345	2.601	Open Manhole	1500	7.011	82.744	450	7.010	82.744	450	
S45	84.699	2.647	Open Manhole	1500	1.016	82.052	750	1.015	82.127	675	
								7.011	82.352	450	
S46	85.572	1.350	Open Manhole	1200	8.000	84.222	150				
S47	85.738	1.672	Open Manhole	1200	8.001	84.066	150	8.000	84.066	150	
S48	85.964	2.195	Open Manhole	1200	8.002	83.770	300	8.001	83.920	150	
S49	85.454	2.074	Open Manhole	1200	8.003	83.380	300	8.002	83.380	300	
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Manhole Schedules for Surface Network 6

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S50	85.321	1.996	Open Manhole	1200	8.004	83.325	300	8.003	83.325	300	753
S51	85.149	1.889	Open Manhole	1200	8.005	83.260	300	8.004	83.260	300	
S52	84.855	1.717	Open Manhole	1200	8.006	83.138	300	8.005	83.138	300	
S53	84.644	2.787	Open Manhole	1500	1.017	81.857	750	1.016	81.857	750	
								8.006	83.060	300	
S54	83.376	1.828	Open Manhole	1500	1.018	81.548	750	1.017	81.548	750	
S55	83.501	2.073	Open Manhole	1500	1.019	81.428	750	1.018	81.428	750	
S56	83.538	2.247	Open Manhole	1500	1.020	81.291	750	1.019	81.291	750	
False	83.592	2.412	Open Manhole	1500		OUTFALL		1.020	81.180	750	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S4	333020.375	352568.470	333020.375	352568.470	Required	
S5	333030.411	352586.108	333030.411	352586.108	Required	
S6	333034.936	352598.542	333034.936	352598.542	Required	
S7	333040.364	352608.057	333040.364	352608.057	Required	
S8	333047.805	352619.889	333047.805	352619.889	Required	
S9	333082.936	352602.613	333082.936	352602.613	Required	
S10	333097.138	352586.063	333097.138	352586.063	Required	
S2	333132.171	352506.253	333132.171	352506.253	Required	
S1	333057.037	352506.734	333057.037	352506.734	Required	
S3	333093.285	352543.575	333093.285	352543.575	Required	
S11	333117.866	352565.417	333117.866	352565.417	Required	
S12	333129.993	352578.652	333129.993	352578.652	Required	
S13	333141.869	352599.790	333141.869	352599.790	Required	
S14	333185.398	352589.547	333185.398	352589.547	Required	
S15	333169.095	352605.144	333169.095	352605.144	Required	
S16	333147.553	352616.532	333147.553	352616.532	Required	
S17	333123.714	352712.305	333123.714	352712.305	Required	
S18	333111.389	352719.437	333111.389	352719.437	Required	

Manhole Schedules for Surface Network 6

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S19	333100.870	352703.784	333100.870	352703.784	Required	
S20	333094.684	352691.413	333094.684	352691.413	Required	
S21	333083.449	352671.930	333083.449	352671.930	Required	
S22	333094.642	352664.903	333094.642	352664.903	Required	
S23	333106.045	352659.770	333106.045	352659.770	Required	
S24	333121.404	352651.101	333121.404	352651.101	Required	
S25	333133.156	352643.942	333133.156	352643.942	Required	
S26	333154.537	352636.910	333154.537	352636.910	Required	
S27	333201.426	352649.573	333201.426	352649.573	Required	
S28	333183.406	352666.417	333183.406	352666.417	Required	
S29	333166.148	352672.213	333166.148	352672.213	Required	
S30	333181.070	352716.524	333181.070	352716.524	Required	
S31	333189.742	352730.864	333189.742	352730.864	Required	
S32	333203.673	352742.738	333203.673	352742.738	Required	
S33	333155.261	352521.324	333155.261	352521.324	Required	
S34	333163.998	352530.886	333163.998	352530.886	Required	
S35	333171.693	352540.784	333171.693	352540.784	Required	
S36	333182.868	352552.086	333182.868	352552.086	Required	
S37	333196.310	352564.123	333196.310	352564.123	Required	
S38	333222.297	352591.530	333222.297	352591.530	Required	
S39	333232.539	352605.172	333232.539	352605.172	Required	
S40	333247.285	352619.408	333247.285	352619.408	Required	
S41	333263.009	352633.177	333263.009	352633.177	Required	
S42	333272.273	352646.351	333272.273	352646.351	Required	

Manhole Schedules for Surface Network 6

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S43	333287.822	352662.348	333287.822	352662.348	Required	
S44	333252.071	352696.732	333252.071	352696.732	Required	
S45	333229.980	352753.056	333229.980	352753.056	Required	
S46	333168.992	352756.514	333168.992	352756.514	Required	
S47	333157.657	352767.256	333157.657	352767.256	Required	
S48	333145.361	352775.117	333145.361	352775.117	Required	
S49	333160.856	352801.628	333160.856	352801.628	Required	
S50	333165.868	352808.244	333165.868	352808.244	Required	
S51	333174.065	352813.381	333174.065	352813.381	Required	
S52	333190.836	352820.696	333190.836	352820.696	Required	
S53	333201.608	352825.394	333201.608	352825.394	Required	
S54	333286.775	352914.512	333286.775	352914.512	Required	
S55	333334.700	352913.798	333334.700	352913.798	Required	
S56	333378.804	352945.998	333378.804	352945.998	Required	
False	333408.738	352978.264			No Entry	

Betts Associates Limited		Page 11
6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rhosrobin, Wrexham	
Date 01/10/2021	Designed by CP	
File CGH04 - PHASE 1 DRAINAGE CHECK ...	Checked by RA	
XP Solutions	Network 2020.1	

PIPELINE SCHEDULES for Surface Network 6

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)
1.000	o	150	S4	92.647	90.561	1.936	Open Manhole	1200
1.001	o	225	S5	91.555	89.810	1.520	Open Manhole	1200
1.002	o	225	S6	90.990	89.252	1.513	Open Manhole	1200
1.003	o	225	S7	90.797	89.142	1.430	Open Manhole	1200
1.004	o	300	S8	90.465	88.133	2.032	Open Manhole	1350
1.005	o	300	S9	90.121	87.698	2.123	Open Manhole	1350
1.006	o	300	S10	90.517	87.455	2.762	Open Manhole	1350
2.000	o	300	S2	93.313	91.615	1.398	Open Manhole	1200
3.000	o	300	S1	96.985	92.852	3.833	Open Manhole	1200
2.001	o	300	S3	93.577	90.115	3.162	Open Manhole	1200
1.007	o	450	S11	91.380	86.980	3.950	Open Manhole	1350
1.008	o	450	S12	90.190	86.535	3.205	Open Manhole	1350
1.009	o	450	S13	89.235	85.934	2.851	Open Manhole	1350
4.000	o	225	S14	88.668	86.975	1.468	Open Manhole	1200
4.001	o	300	S15	88.391	86.765	1.326	Open Manhole	1200
1.010	o	450	S16	88.814	85.496	2.868	Open Manhole	1350
5.000	o	225	S17	86.826	85.403	1.198	Open Manhole	1200
5.001	o	225	S18	86.681	85.317	1.139	Open Manhole	1350
5.002	o	300	S19	86.924	85.129	1.495	Open Manhole	1350
5.003	o	300	S20	87.093	85.070	1.723	Open Manhole	1350
5.004	o	450	S21	87.338	84.825	2.063	Open Manhole	1350
5.005	o	450	S22	87.525	84.791	2.284	Open Manhole	1350
5.006	o	450	S23	87.678	84.759	2.469	Open Manhole	1350
5.007	o	450	S24	87.901	84.714	2.737	Open Manhole	1350
5.008	o	525	S25	88.087	84.604	2.958	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)
1.000	20.293	30.0	S5	91.555	89.885	1.520	Open Manhole	1200
1.001	13.232	23.7	S6	90.990	89.252	1.513	Open Manhole	1200
1.002	10.954	100.0	S7	90.797	89.142	1.430	Open Manhole	1200
1.003	13.977	100.0	S8	90.465	89.003	1.237	Open Manhole	1350
1.004	39.149	90.0	S9	90.121	87.698	2.123	Open Manhole	1350
1.005	21.808	90.1	S10	90.517	87.456	2.761	Open Manhole	1350
1.006	29.256	90.0	S11	91.380	87.130	3.950	Open Manhole	1350
2.000	53.899	100.0	S3	93.577	91.076	2.201	Open Manhole	1200
3.000	51.683	19.3	S3	93.577	90.174	3.103	Open Manhole	1200
2.001	32.883	100.0	S11	91.380	89.786	1.294	Open Manhole	1350
1.007	17.951	40.0	S12	90.190	86.531	3.209	Open Manhole	1350
1.008	24.246	40.0	S13	89.235	85.929	2.856	Open Manhole	1350
1.009	17.681	40.0	S16	88.814	85.492	2.872	Open Manhole	1350
4.000	22.562	167.0	S15	88.391	86.840	1.326	Open Manhole	1200
4.001	24.367	238.0	S16	88.814	86.663	1.851	Open Manhole	1350
1.010	21.542	24.6	S26	88.285	84.620	3.215	Open Manhole	1500
5.000	14.240	165.6	S18	86.681	85.317	1.139	Open Manhole	1350
5.001	18.859	166.9	S19	86.924	85.204	1.495	Open Manhole	1350
5.002	13.831	234.4	S20	87.093	85.070	1.723	Open Manhole	1350
5.003	22.490	236.7	S21	87.338	84.975	2.063	Open Manhole	1350
5.004	13.216	388.7	S22	87.525	84.791	2.284	Open Manhole	1350
5.005	12.505	390.8	S23	87.678	84.759	2.469	Open Manhole	1350
5.006	17.637	391.9	S24	87.901	84.714	2.737	Open Manhole	1350
5.007	13.761	393.2	S25	88.087	84.679	2.958	Open Manhole	1350
5.008	22.508	381.5	S26	88.285	84.545	3.215	Open Manhole	1500

PIPELINE SCHEDULES for Surface Network 6

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)
1.011	o	675	S26	88.285	84.395	3.215	Open Manhole	1500
6.000	o	225	S27	86.825	85.120	1.480	Open Manhole	1200
6.001	o	225	S28	87.141	84.972	1.944	Open Manhole	1200
1.012	o	675	S29	87.386	83.391	3.320	Open Manhole	1500
1.013	o	675	S30	86.254	82.776	2.803	Open Manhole	1500
1.014	o	675	S31	85.857	82.556	2.626	Open Manhole	1500
1.015	o	675	S32	85.411	82.315	2.421	Open Manhole	1500
7.000	o	225	S33	92.069	90.294	1.550	Open Manhole	1200
7.001	o	225	S34	91.372	89.646	1.501	Open Manhole	1200
7.002	o	225	S35	90.798	89.019	1.554	Open Manhole	1200
7.003	o	300	S36	90.304	88.149	1.855	Open Manhole	1200
7.004	o	300	S37	89.598	87.322	1.976	Open Manhole	1200
7.005	o	300	S38	88.279	86.170	1.809	Open Manhole	1200
7.006	o	300	S39	87.646	85.649	1.697	Open Manhole	1200
7.007	o	300	S40	86.933	85.024	1.609	Open Manhole	1200
7.008	o	300	S41	86.261	84.386	1.575	Open Manhole	1200
7.009	o	300	S42	85.758	83.895	1.563	Open Manhole	1200
7.010	o	450	S43	85.167	83.065	1.652	Open Manhole	1500
7.011	o	450	S44	85.345	82.744	2.151	Open Manhole	1500
1.016	o	750	S45	84.699	82.052	1.897	Open Manhole	1500
8.000	o	150	S46	85.572	84.222	1.200	Open Manhole	1200
8.001	o	150	S47	85.738	84.066	1.522	Open Manhole	1200
8.002	o	300	S48	85.964	83.770	1.895	Open Manhole	1200
8.003	o	300	S49	85.454	83.380	1.774	Open Manhole	1200
8.004	o	300	S50	85.321	83.325	1.696	Open Manhole	1200
8.005	o	300	S51	85.149	83.260	1.589	Open Manhole	1200
8.006	o	300	S52	84.855	83.138	1.417	Open Manhole	1200

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)
1.011	37.163	37.0	S29	87.386	83.391	3.320	Open Manhole	1500
6.000	24.667	166.7	S28	87.141	84.972	1.944	Open Manhole	1200
6.001	18.205	167.0	S29	87.386	84.863	2.298	Open Manhole	1500
1.012	46.756	76.0	S30	86.254	82.776	2.803	Open Manhole	1500
1.013	16.758	76.2	S31	85.857	82.556	2.626	Open Manhole	1500
1.014	18.305	76.0	S32	85.411	82.315	2.421	Open Manhole	1500
1.015	28.258	150.3	S45	84.699	82.127	1.897	Open Manhole	1500
7.000	12.952	20.0	S34	91.372	89.646	1.501	Open Manhole	1200
7.001	12.537	20.0	S35	90.798	89.019	1.554	Open Manhole	1200
7.002	15.894	20.0	S36	90.304	88.224	1.855	Open Manhole	1200
7.003	18.044	21.8	S37	89.598	87.322	1.976	Open Manhole	1200
7.004	37.769	32.8	S38	88.279	86.170	1.809	Open Manhole	1200
7.005	17.059	32.8	S39	87.646	85.649	1.697	Open Manhole	1200
7.006	20.497	32.8	S40	86.933	85.024	1.609	Open Manhole	1200
7.007	20.900	32.8	S41	86.261	84.386	1.575	Open Manhole	1200
7.008	16.105	32.8	S42	85.758	83.895	1.563	Open Manhole	1200
7.009	22.309	32.8	S43	85.167	83.215	1.652	Open Manhole	1500
7.010	49.602	154.5	S44	85.345	82.744	2.151	Open Manhole	1500
7.011	60.501	154.3	S45	84.699	82.352	1.897	Open Manhole	1500
1.016	77.703	398.5	S53	84.644	81.857	2.037	Open Manhole	1500
8.000	15.616	100.0	S47	85.738	84.066	1.522	Open Manhole	1200
8.001	14.594	100.0	S48	85.964	83.920	1.895	Open Manhole	1200
8.002	30.707	78.8	S49	85.454	83.380	1.774	Open Manhole	1200
8.003	8.300	150.0	S50	85.321	83.325	1.696	Open Manhole	1200
8.004	9.674	150.0	S51	85.149	83.260	1.589	Open Manhole	1200
8.005	18.297	150.0	S52	84.855	83.138	1.417	Open Manhole	1200
8.006	11.752	150.7	S53	84.644	83.060	1.284	Open Manhole	1500

PIPELINE SCHEDULES for Surface Network 6									
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)	
1.017	o	750	S53	84.644	81.857	2.037	Open Manhole	1500	
1.018	o	750	S54	83.376	81.548	1.078	Open Manhole	1500	
1.019	o	750	S55	83.501	81.428	1.323	Open Manhole	1500	
1.020	o	750	S56	83.538	81.291	1.497	Open Manhole	1500	
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)	
1.017	123.270	398.9	S54	83.376	81.548	1.078	Open Manhole	1500	
1.018	47.930	399.4	S55	83.501	81.428	1.323	Open Manhole	1500	
1.019	54.608	398.6	S56	83.538	81.291	1.497	Open Manhole	1500	
1.020	44.013	396.5	False	83.592	81.180	1.662	Open Manhole	1500	

Rhosrobin, Wrexham



Designed by CP

Checked by RA

Network 2020.1

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
1.000	S4	1200		333020.375	352568.470	333020.375	352568.470	
1.001	S5	1200		333030.411	352586.108	333030.411	352586.108	
1.002	S6	1200		333034.936	352598.542	333034.936	352598.542	
1.003	S7	1200		333040.364	352608.057	333040.364	352608.057	
1.004	S8	1350		333047.805	352619.889	333047.805	352619.889	
1.005	S9	1350		333082.936	352602.613	333082.936	352602.613	
1.006	S10	1350		333097.138	352586.063	333097.138	352586.063	
2.000	S2	1200		333132.171	352506.253	333132.171	352506.253	
3.000	S1	1200		333057.037	352506.734	333057.037	352506.734	
2.001	S3	1200		333093.285	352543.575	333093.285	352543.575	
1.007	S11	1350		333117.866	352565.417	333117.866	352565.417	
1.008	S12	1350		333129.993	352578.652	333129.993	352578.652	
1.009	S13	1350		333141.869	352599.790	333141.869	352599.790	
4.000	S14	1200		333185.398	352589.547	333185.398	352589.547	
4.001	S15	1200		333169.095	352605.144	333169.095	352605.144	
1.010	S16	1350		333147.553	352616.532	333147.553	352616.532	
5.000	S17	1200		333123.714	352712.305	333123.714	352712.305	
5.001	S18	1350		333111.389	352719.437	333111.389	352719.437	
5.002	S19	1350		333100.870	352703.784	333100.870	352703.784	
5.003	S20	1350		333094.684	352691.413	333094.684	352691.413	
5.004	S21	1350		333083.449	352671.930	333083.449	352671.930	
5.005	S22	1350		333094.642	352664.903	333094.642	352664.903	
5.006	S23	1350		333106.045	352659.770	333106.045	352659.770	
5.007	S24	1350		333121.404	352651.101	333121.404	352651.101	
5.008	S25	1350		333133.156	352643.942	333133.156	352643.942	

Setting Out Information - True Coordinates (Surface Network 6)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
1.011	S26	1500		333154.537	352636.910	333154.537	352636.910	
6.000	S27	1200		333201.426	352649.573	333201.426	352649.573	
6.001	S28	1200		333183.406	352666.417	333183.406	352666.417	
1.012	S29	1500		333166.148	352672.213	333166.148	352672.213	
1.013	S30	1500		333181.070	352716.524	333181.070	352716.524	
1.014	S31	1500		333189.742	352730.864	333189.742	352730.864	
1.015	S32	1500		333203.673	352742.738	333203.673	352742.738	
7.000	S33	1200		333155.261	352521.324	333155.261	352521.324	
7.001	S34	1200		333163.998	352530.886	333163.998	352530.886	
7.002	S35	1200		333171.693	352540.784	333171.693	352540.784	
7.003	S36	1200		333182.868	352552.086	333182.868	352552.086	
7.004	S37	1200		333196.310	352564.123	333196.310	352564.123	
7.005	S38	1200		333222.297	352591.530	333222.297	352591.530	
7.006	S39	1200		333232.539	352605.172	333232.539	352605.172	
7.007	S40	1200		333247.285	352619.408	333247.285	352619.408	
7.008	S41	1200		333263.009	352633.177	333263.009	352633.177	
7.009	S42	1200		333272.273	352646.351	333272.273	352646.351	
7.010	S43	1500		333287.822	352662.348	333287.822	352662.348	
7.011	S44	1500		333252.071	352696.732	333252.071	352696.732	
1.016	S45	1500		333229.980	352753.056	333229.980	352753.056	
8.000	S46	1200		333168.992	352756.514	333168.992	352756.514	
8.001	S47	1200		333157.657	352767.256	333157.657	352767.256	
8.002	S48	1200		333145.361	352775.117	333145.361	352775.117	
8.003	S49	1200		333160.856	352801.628	333160.856	352801.628	
8.004	S50	1200		333165.868	352808.244	333165.868	352808.244	

Setting Out Information - True Coordinates (Surface Network 6)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
8.005	S51	1200		333174.065	352813.381	333174.065	352813.381	
8.006	S52	1200		333190.836	352820.696	333190.836	352820.696	
1.017	S53	1500		333201.608	352825.394	333201.608	352825.394	
1.018	S54	1500		333286.775	352914.512	333286.775	352914.512	
1.019	S55	1500		333334.700	352913.798	333334.700	352913.798	
1.020	S56	1500		333378.804	352945.998	333378.804	352945.998	

PN	DSMH Name	Dia/Len (mm)	Width (mm)	DS Easting (m)	DS Northing (m)	Layout (North)
1.020	False	1500		333408.738	352978.264	

Area Summary for Surface Network 6

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.057	0.057	0.057
1.001	-	-	100	0.054	0.054	0.054
1.002	-	-	100	0.018	0.018	0.018
1.003	-	-	100	0.067	0.067	0.067
1.004	-	-	100	0.091	0.091	0.091
1.005	-	-	100	0.126	0.126	0.126
1.006	-	-	100	0.029	0.029	0.029
2.000	-	-	100	0.197	0.197	0.197
3.000	-	-	100	0.230	0.230	0.230
2.001	-	-	100	0.129	0.129	0.129
1.007	-	-	100	0.051	0.051	0.051
1.008	-	-	100	0.092	0.092	0.092
1.009	-	-	100	0.074	0.074	0.074
4.000	-	-	100	0.082	0.082	0.082
4.001	-	-	100	0.033	0.033	0.033
1.010	-	-	100	0.064	0.064	0.064
5.000	-	-	100	0.079	0.079	0.079
5.001	-	-	100	0.101	0.101	0.101
5.002	-	-	100	0.025	0.025	0.025
5.003	-	-	100	0.052	0.052	0.052
5.004	-	-	100	0.099	0.099	0.099
5.005	-	-	100	0.000	0.000	0.000
5.006	-	-	100	0.070	0.070	0.070
5.007	-	-	100	0.054	0.054	0.054
5.008	-	-	100	0.008	0.008	0.008
1.011	-	-	100	0.032	0.032	0.032
6.000	-	-	100	0.123	0.123	0.123
6.001	-	-	100	0.008	0.008	0.008
1.012	-	-	100	0.136	0.136	0.136
1.013	-	-	100	0.054	0.054	0.054
1.014	-	-	100	0.039	0.039	0.039
1.015	-	-	100	0.157	0.157	0.157
7.000	-	-	100	0.061	0.061	0.061
7.001	-	-	100	0.000	0.000	0.000
7.002	-	-	100	0.044	0.044	0.044
7.003	-	-	100	0.018	0.018	0.018
7.004	-	-	100	0.058	0.058	0.058
7.005	-	-	100	0.000	0.000	0.000
7.006	-	-	100	0.066	0.066	0.066
7.007	-	-	100	0.078	0.078	0.078
7.008	-	-	100	0.000	0.000	0.000
7.009	-	-	100	0.096	0.096	0.096
7.010	-	-	100	0.000	0.000	0.000
7.011	-	-	100	0.094	0.094	0.094
1.016	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.017	0.017	0.017
8.001	-	-	100	0.085	0.085	0.085
8.002	-	-	100	0.088	0.088	0.088
8.003	-	-	100	0.009	0.009	0.009
8.004	-	-	100	0.045	0.045	0.045
8.005	-	-	100	0.021	0.021	0.021
8.006	-	-	100	0.112	0.112	0.112
1.017	-	-	100	0.000	0.000	0.000
1.018	-	-	100	0.000	0.000	0.000
1.019	-	-	100	0.000	0.000	0.000
1.020	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				3.323	3.323	3.323

Free Flowing Outfall Details for Surface Network 6

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.020	False	83.592	81.180	0.000	1500	0

Betts Associates Limited		Page 18
6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rhosrobin, Wrexham	
Date 01/10/2021	Designed by CP	
File CGH04 - PHASE 1 DRAINAGE CHECK ...	Checked by RA	
XP Solutions	Network 2020.1	

Simulation Criteria for Surface Network 6

Volumetric Runoff Coeff	0.750	Manhole Headloss Coeff (Global)	0.500	Inlet Coefficient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m³/ha Storage	2.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Offline Controls	0	Number of Time/Area Diagrams	0
Number of Online Controls	0	Number of Storage Structures	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	18.000	Cv (Summer)	0.750
Return Period (years)	1	Ratio R	0.316	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Summer Storm	Duration (mins)	30

Storage Structures for Surface Network 6

Infiltration Basin Manhole: S56, DS/PN: 1.020

Invert Level (m) 80.991 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Base (m/hr) 0.45720 Safety Factor 2.0

Depth (m) Area (m²)		Depth (m) Area (m²)	
0.000	374.0	2.547	1168.0

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 6

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Online Controls 0 Number of Offline Controls 0 Number of Storage Structures 1 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.740
Region England and Wales Ratio R 0.316 Cv (Winter) 0.850

Margin for Flood Risk Warning (mm) 300.0 DTS Status OFF Inertia Status OFF
Analysis Timestep Fine DVD Status OFF

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

																		Level Exceeded	
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surgecharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status			
1.000	S4 15 Winter		100	+40%	100/15 Winter				90.863	0.151	0.000	0.89			27.2	SURCHARGED			
1.001	S5 15 Winter		100	+40%	100/15 Summer				90.440	0.405	0.000	0.55			50.8	SURCHARGED			
1.002	S6 15 Winter		100	+40%	100/15 Summer				90.318	0.841	0.000	1.28			56.1	SURCHARGED			
1.003	S7 15 Winter		100	+40%	100/15 Summer				90.185	0.818	0.000	1.88			85.4	SURCHARGED			
1.004	S8 15 Winter		100	+40%	100/15 Summer				89.819	1.386	0.000	1.03			112.4	SURCHARGED			
1.005	S9 15 Winter		100	+40%	100/15 Summer				89.388	1.390	0.000	1.56			160.3	SURCHARGED			
1.006	S10 15 Winter		100	+40%	100/15 Summer				88.895	1.140	0.000	1.56			165.9	SURCHARGED			
2.000	S2 15 Winter		100	+40%	100/15 Summer				92.496	0.581	0.000	0.86			90.2	SURCHARGED			
3.000	S1 15 Winter		100	+40%					93.002	-0.150	0.000	0.50			118.7	OK			
2.001	S3 15 Winter		100	+40%	100/15 Summer				92.107	1.692	0.000	2.45			249.7	SURCHARGED			
1.007	S11 15 Winter		100	+40%	100/15 Summer				88.207	0.777	0.000	1.13			428.5	SURCHARGED			
1.008	S12 15 Winter		100	+40%	100/15 Summer				87.685	0.700	0.000	1.07			455.3	SURCHARGED			
1.009	S13 15 Winter		100	+40%	100/15 Summer				87.094	0.710	0.000	1.24			463.5	SURCHARGED			
4.000	S14 15 Winter		100	+40%	100/15 Summer				87.236	0.036	0.000	1.13			41.6	SURCHARGED			
4.001	S15 15 Winter		100	+40%					86.992	-0.073	0.000	0.92			58.5	OK			
1.010	S16 15 Winter		100	+40%	100/15 Summer				86.484	0.538	0.000	1.00			527.8	SURCHARGED			
5.000	S17 15 Winter		100	+40%	100/15 Summer				86.503	0.875	0.000	1.00			35.1	SURCHARGED			
5.001	S18 15 Winter		100	+40%	100/15 Summer				86.416	0.874	0.000	2.11			76.2	FLOOD RISK			
5.002	S19 15 Winter		100	+40%	100/15 Summer				86.081	0.652	0.000	1.44			85.9	SURCHARGED			
5.003	S20 15 Winter		100	+40%	100/15 Summer				86.024	0.654	0.000	1.68			107.0	SURCHARGED			
5.004	S21 15 Winter		100	+40%	100/15 Summer				85.899	0.624	0.000	1.43			152.5	SURCHARGED			
5.005	S22 15 Winter		100	+40%	100/15 Summer				85.868	0.627	0.000	1.43			150.3	SURCHARGED			
5.006	S23 15 Winter		100	+40%	100/15 Summer				85.838	0.629	0.000	1.47			179.6	SURCHARGED			
5.007	S24 15 Winter		100	+40%	100/15 Summer				85.796	0.632	0.000	1.88			200.2	SURCHARGED			

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 6																	
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
5.008	S25 15	Winter	100	+40%	100/15 Summer				85.753	0.624	0.000	0.95			187.0	SURCHARGED	
1.011	S26 15	Winter	100	+40%	100/15 Summer				85.716	0.646	0.000	0.52			660.9	SURCHARGED	
6.000	S27 15	Winter	100	+40%	100/15 Summer				85.792	0.447	0.000	1.59			58.7	SURCHARGED	
6.001	S28 15	Winter	100	+40%	100/15 Summer				85.584	0.387	0.000	1.70			61.1	SURCHARGED	
1.012	S29 15	Winter	100	+40%	100/15 Summer				85.469	1.403	0.000	0.80			738.0	SURCHARGED	
1.013	S30 15	Winter	100	+40%	100/15 Summer				85.144	1.693	0.000	1.25			744.5	SURCHARGED	
1.014	S31 15	Winter	100	+40%	100/15 Summer				84.856	1.625	0.000	1.20			745.7	SURCHARGED	
1.015	S32 15	Winter	100	+40%	100/15 Summer				84.556	1.566	0.000	1.40			768.5	SURCHARGED	
7.000	S33 15	Winter	100	+40%					90.380	-0.139	0.000	0.31			31.5	OK	
7.001	S34 15	Winter	100	+40%					89.733	-0.138	0.000	0.31			31.1	OK	
7.002	S35 15	Winter	100	+40%					89.137	-0.107	0.000	0.53			55.1	OK	
7.003	S36 15	Winter	100	+40%					88.266	-0.183	0.000	0.31			64.7	OK	
7.004	S37 15	Winter	100	+40%					87.480	-0.142	0.000	0.53			96.2	OK	
7.005	S38 15	Winter	100	+40%					86.335	-0.135	0.000	0.57			95.5	OK	
7.006	S39 15	Winter	100	+40%					85.852	-0.097	0.000	0.77			130.8	OK	
7.007	S40 15	Winter	100	+40%	100/15 Summer				85.545	0.221	0.000	0.94			160.9	SURCHARGED	
7.008	S41 15	Winter	100	+40%	100/15 Summer				85.122	0.436	0.000	0.93			153.2	SURCHARGED	
7.009	S42 15	Winter	100	+40%	100/15 Summer				84.810	0.615	0.000	1.14			195.0	SURCHARGED	
7.010	S43 15	Winter	100	+40%	100/15 Summer				84.426	0.911	0.000	0.77			182.7	SURCHARGED	
7.011	S44 15	Winter	100	+40%	100/15 Summer				84.359	1.165	0.000	0.76			181.9	SURCHARGED	
1.016	S45 15	Winter	100	+40%	100/15 Summer				84.227	1.425	0.000	1.67			917.1	SURCHARGED	
8.000	S46 15	Winter	100	+40%	100/15 Summer				85.422	1.050	0.000	0.70			11.5	FLOOD RISK	
8.001	S47 15	Winter	100	+40%	100/15 Summer				85.399	1.183	0.000	2.52			41.3	SURCHARGED	
8.002	S48 15	Winter	100	+40%	100/15 Summer				84.505	0.435	0.000	0.69			78.9	SURCHARGED	
8.003	S49 15	Winter	100	+40%	100/15 Summer				84.314	0.634	0.000	1.36			83.5	SURCHARGED	
8.004	S50 15	Winter	100	+40%	100/15 Summer				84.203	0.579	0.000	1.62			102.7	SURCHARGED	
8.005	S51 15	Winter	100	+40%	100/15 Summer				84.033	0.473	0.000	1.44			112.7	SURCHARGED	
8.006	S52 30	Winter	100	+40%	100/15 Summer				83.877	0.439	0.000	2.03			142.1	SURCHARGED	
1.017	S53 30	Winter	100	+40%	100/15 Summer				83.727	1.120	0.000	1.67			956.1	SURCHARGED	
1.018	S54 15	Winter	100	+40%	100/15 Summer				82.863	0.565	0.000	1.85			954.7	SURCHARGED	
1.019	S55 15	Winter	100	+40%	100/15 Summer				82.453	0.275	0.000	1.80			950.6	SURCHARGED	
1.020	S56 60	Winter	100	+40%					82.018	-0.023	0.000	1.00		26	512.5	OK	