CONTINUED ON DRAWING 13-037-048

CONTINUED ON PLAN BELOW

CONTINUED ON DRAWING 13-037-048

CONTINUED INSET

Outline Application all matters reserved.
Area subject to Reserved Matters
Application and layout only shown as indicative.

NOTES

1. Do not scale from this drawing. All dimensions are in meters unless stated otherwise.
2. Surface water strategy based on topographical survey provided by others. C&A Consulting cannot accept responsibility for any inaccuracies.
3. This drawing must be read as indicative only and is subject to detailed development design.
4. The surface water strategy depicted on this drawing is preliminary only and indicates design intent.
5. Designed depth and diameters will be subject to variation upon detailed development design.
6. Stated cover levels are for hydraulic assessment and should not be relied upon.
8. For Section through the main SuDS treatment basin refer to drawing number 13-037-035 & 13-037-039.
9. In order to show the Root Protection Area (RPA) _Base A, tree survey plan is included within the drawing.

LEGEND

- Site Boundary
- Attenuation Basin
- Treatment Pool
- Wet Pond
- Extent of Top/Bottom embankment
- SW Pipes and Manholes
- Flow Control Manhole
- Existing Watercourses
- Swale
- Pervious Paving (North)
- Pervious Paving (South)
- Pervious paving with Belowground Storage Tank
- Cellular Storage Tank
- Root Protection Area (RPA_ A)

KEYPLAN
Scale 1:10000

Rev	Amendments	Drn	Chk	App	Date
A	Amended to suit revised masterplan	DK	SPS	GAC	Jan 19

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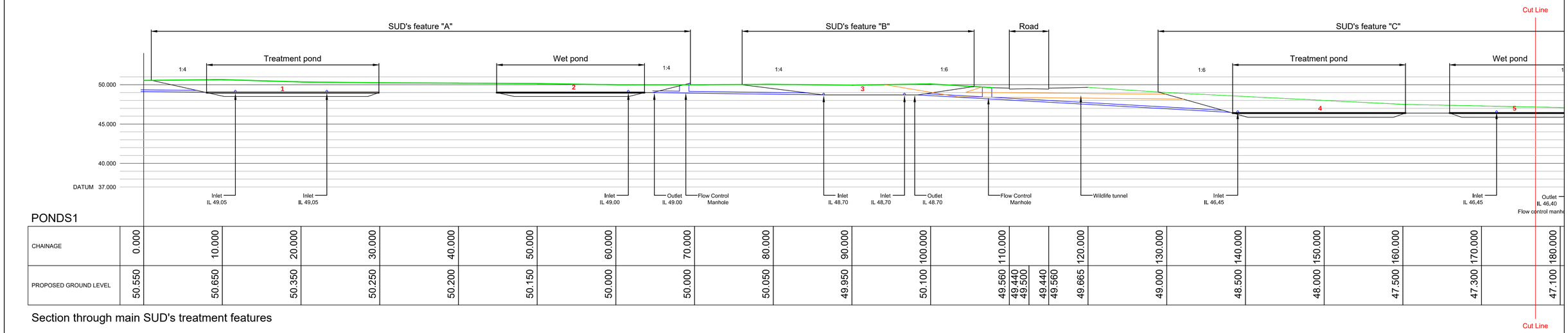
Job Title
Land at Broad Oak Farm
Sturry, Canterbury

Drawing Title
Proposed Surface Water Strategy - Sheet 3 of 3

Client
Barratt David Wison Homes

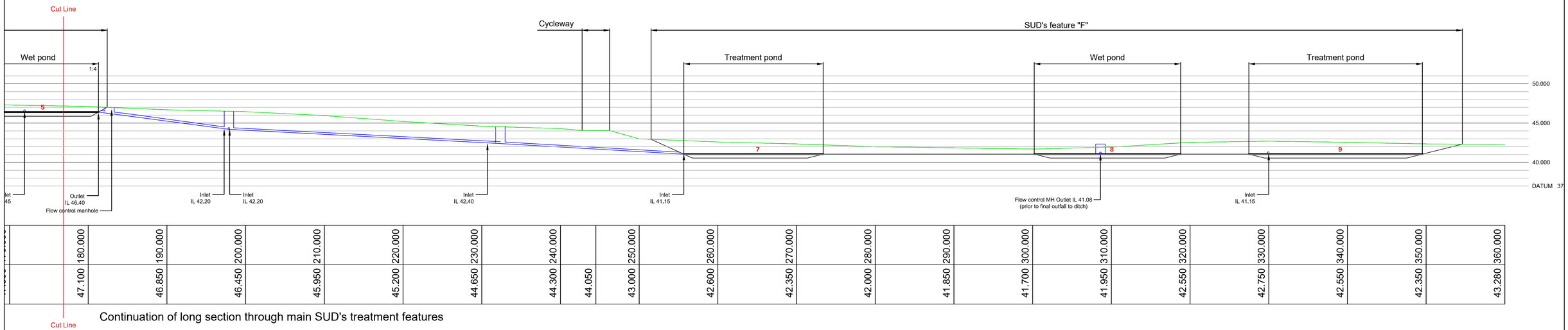
Scale	Date	Designed
1:500 @ A1	April 18	SPS
Drawn	Checked	Approved
DK	SPS	GAC
Job No	Drawing No	Rev
13-037	13-037-049	A



PONDS1

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000			120.000	130.000	140.000	150.000	160.000	170.000		180.000
PROPOSED GROUND LEVEL	50.550	50.650	50.350	50.250	50.200	50.150	50.000	50.000	50.050	49.950	50.100	49.560	49.440	49.500	49.440	49.560	49.665	49.000	48.500	48.000	47.500	47.300		47.100

Section through main SUD's treatment features



	180.000	190.000	200.000	210.000	220.000	230.000	240.000		250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000	340.000	350.000	360.000
	47.100	46.850	46.450	45.950	45.200	44.650	44.300	44.050	43.000	42.600	42.350	42.000	41.850	41.700	41.950	42.550	42.750	42.550	42.350	43.280

Continuation of long section through main SUD's treatment features

Enlarged section through newt crossing on main road (1:100)

Key

- Existing ground level
- Proposed surface level
- Permanent water level
- Maximum water level
- Wildlife tunnel (off line from drainage pipe)
- Indicative surface water pipes
- 8 Section location

NOTES:

To be read in conjunction with drawings 13-037-039 - Proposed Basin Details and 13-037-038 - Newt Crossing Concept

Rev	Amendments	Drn	Chk	App	Date
D	Masterplan updated	GW	SS	GC	Jan 19
C	Wildlife tunnel added	GW	SS	GC	April 18
B	Long section amended to suit revised levels	GG	SS	GC	April 18
A	Long section updated & outfall added	GW	SS	SS	Mar 18

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Job Title

Land at Broad Oak Farm
Sturry, Canterbury

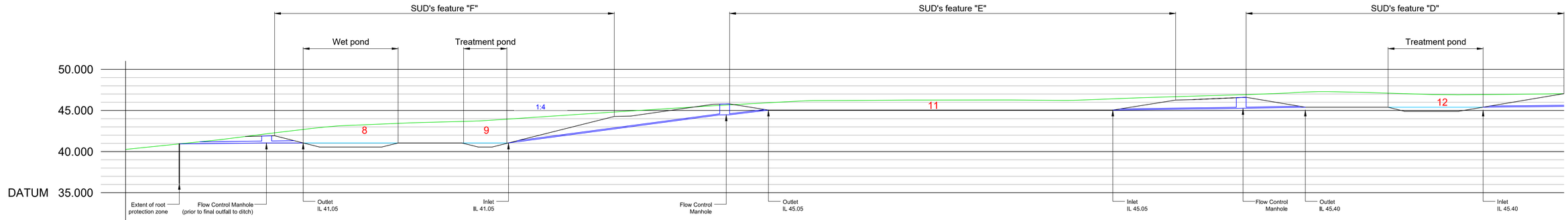
Drawing Title

Proposed SUD's Ponds
Long Sections

Client

Barratt David Wilson Homes

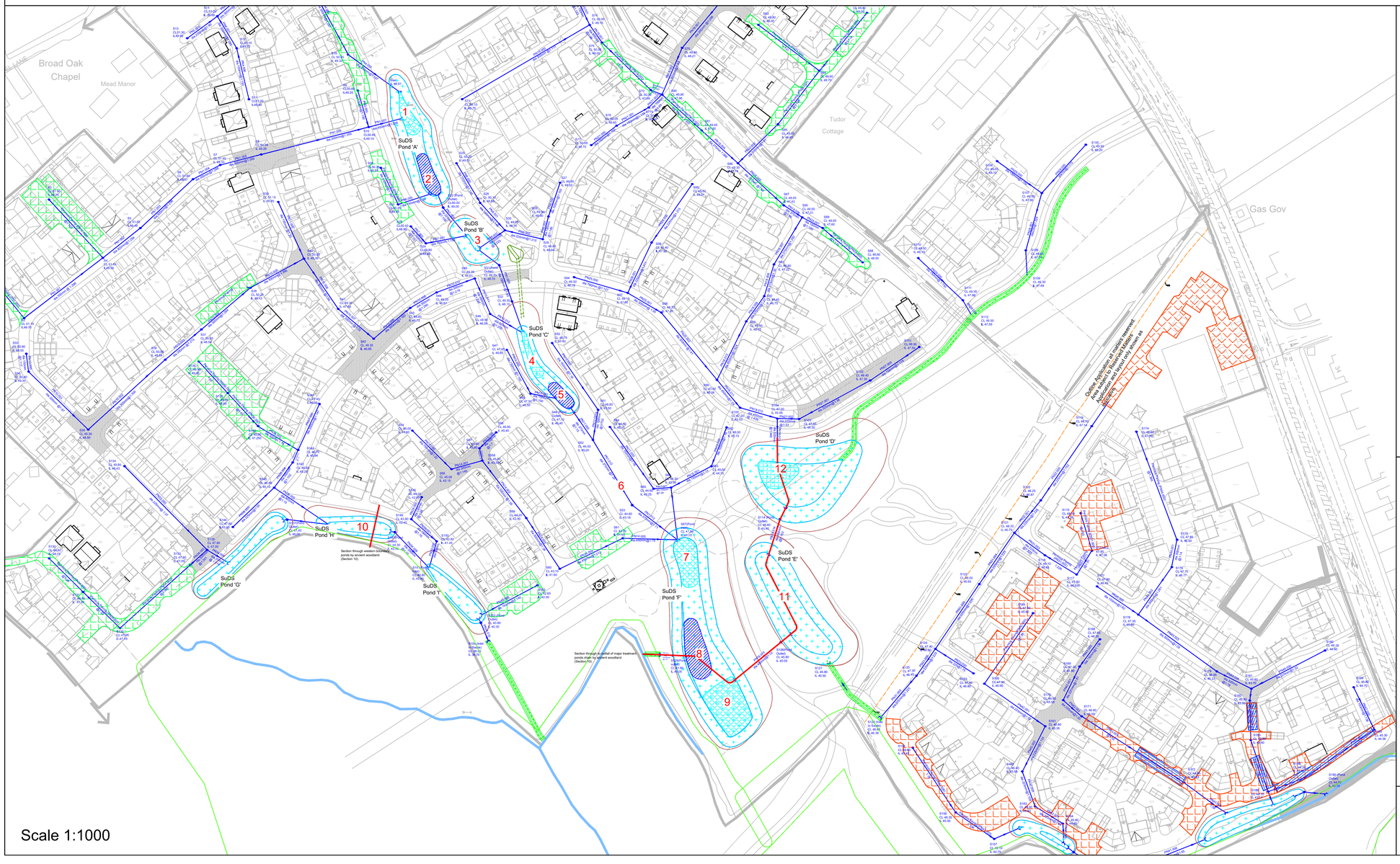
Scale	Date	Designed
1:250 @ A1	Feb 18	GPW
Drawn	Checked	Approved
GPW	SS	GAC
Job No	Drawing No	Rev
13-037	13-037-035	D



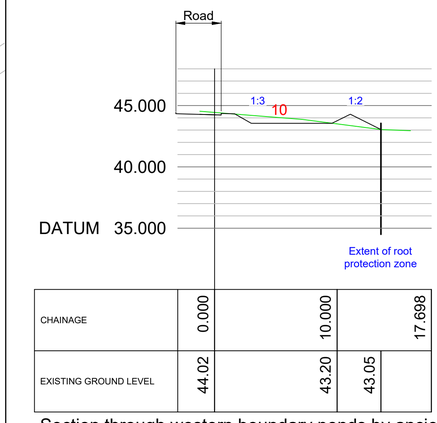
CHAINAGE	0.000	23.344	24.628	42.240	44.979	81.590	84.305	114.155	115.718	136.284	136.581	144.885	146.435	161.927	162.541	175.124
EXISTING GROUND LEVEL	40.266	41.286	42.497	43.301	43.644	44.182	44.849	45.475	46.037	46.226	46.262	46.256	46.406	46.743	47.062	47.220	46.934	46.979	47.040

Section through major treatment ponds chain, through SUDS features "G", "H" & "E", to final outfall by ancient woodland

Scale 1:250



Scale 1:1000



CHAINAGE	0.000	10.000	17.698
EXISTING GROUND LEVEL	44.02	43.20	43.05

Section through western boundary ponds by ancient woodland (Section 10)

Scale 1:250

Key

- Alignments of sections
- Tree root protection
- Existing ground level
- Proposed surface level
- Permanent water level
- Maximum water level
- Indicative surface water pipes
- 8 Section location
- Existing Watercourses
- Swale
- Pervious Paving
- Pervious paving with Belowground Storage Tank
- Attenuation Basin
- Treatment Pool
- Wet Pond
- Extent of Top/Bottom embankment
- Wildlife tunnel and access

NOTES:

To be read in conjunction with drawings 13-037-035 - Proposed Basins Sections and 13-037-038 - Newt Crossing Concept

Rev	Amendments	Drn	Chk	App	Date
D	Revised masterplan	GW	SS	GC	Jan 19
C	Wildlife tunnel added	DK	SS	GC	Apr 18
B	Revised masterplan	DK	SS	GC	Apr 18
A	Amended to suit latest masterplan	GG	SS	GC	Apr 18

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Job Title

Land at Broad Oak, Sturry, Canterbury

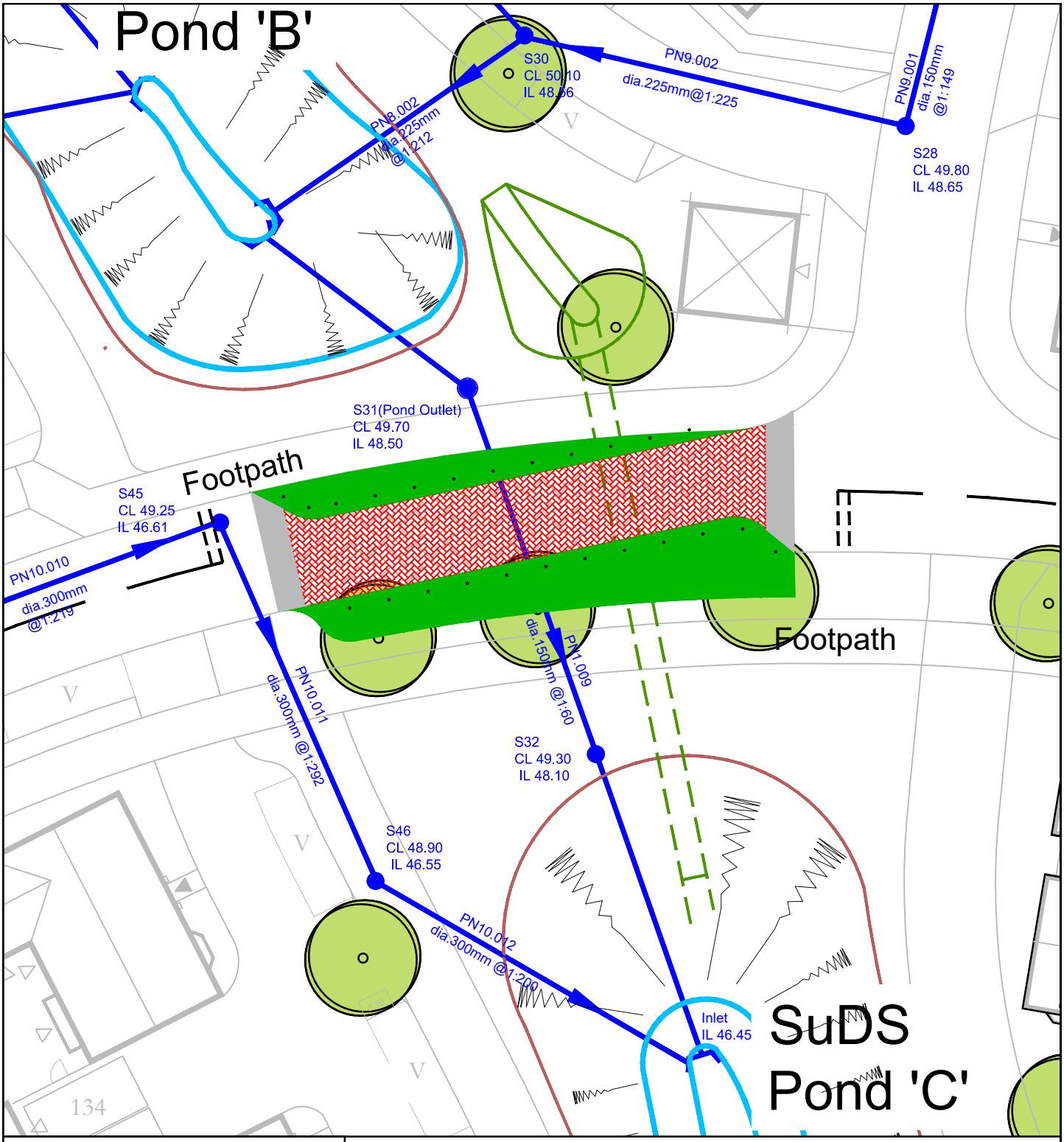
Drawing Title

Proposed Basin Details

Client

Barratt David Wilson Homes

Scale	Date	Designed
As shown @ A1	Mar 18	GPW
Drawn	Checked	Approved
GPW	SS	GAC
Job No	Drawing No	Rev
13-037	13-037-039	D



Legend

- Tarmac ramp
- Block paving
- Grassed area
- Bollards
- SuDS Pond Outline
- SuDS Pond Top Embankment
- Surface water network
- Indicative wildlife tunnel (and access)

Rev	Amendments	Drn	Chk	App	Date
D	Amended masterplan	DK	SS	GC	Jan 19
C	Amended masterplan & wildlife tunnel added	GW	SS	GC	April 18
B	Additional drainage system information added	GW	SS	SS	April 18
A	Amend to suit latest master plan	GG	SS	GC	April 18

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Job Title: Land at Broad Oak Farm, Sturry	Scale: 1:250 @ A4	Date: March 18	Designed: GPW
Drawing Title: Newt Crossing Concept	Drawn: GPW	Checked: GAC	Approved: GAC
Client: Barratt David Wilson Homes	Job No: 13-037	Drawing No: 13-037-038	Rev: D

Appendix I Development Surface Water Drainage Calculations

Development Surface Water Drainage Calculations:

This set of calculations contains

- Network Details and Details of all surface water storage features
- Summary of critical results for the return period of;

    - 1 in 1 year
    - 1 in 2 year
    - 1 in 30 year
    - 1 in 100 year
    - 1 in 100 year + 20% climate change
    - 1 in 100 year + 40% climate change

Network Details

Northern Parcel

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for north - 1in 1 year

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	26.250	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for north - 1in 1 year

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	28.331	0.750	37.8	0.113	5.00	0.0		0.075	→|↓|→		Porous Car Park	
1.001	43.120	0.140	308.0	0.075	0.00	0.0	0.600		o	300	Pipe/Conduit	
2.000	36.125	0.350	103.2	0.127	5.00	0.0		0.075	→|↓|→		Porous Car Park	
1.002	22.023	0.075	293.6	0.061	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.003	32.558	0.110	296.0	0.087	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.004	13.416	0.045	298.1	0.045	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.005	19.647	0.065	302.3	0.032	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.006	50.695	0.165	307.2	0.028	0.00	0.0	0.600		o	300	Pipe/Conduit	
3.000	16.763	0.112	149.7	0.035	5.00	0.0	0.600		o	150	Pipe/Conduit	
1.007	45.211	0.190	238.0	0.046	0.00	0.0	0.600		o	450	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	50.00	5.89	50.450	0.113	0.0	0.0	0.0	0.53	1163.9	15.3
1.001	50.00	6.69	49.700	0.188	0.0	0.0	0.0	0.89	63.0	25.5
2.000	50.00	6.70	50.750	0.127	0.0	0.0	0.0	0.35	1486.2	17.2
1.002	50.00	7.10	49.560	0.376	0.0	0.0	0.0	0.91	64.5	50.9
1.003	50.00	7.70	49.485	0.463	0.0	0.0	0.0	0.91	64.2	62.7
1.004	50.00	7.95	49.375	0.508	0.0	0.0	0.0	0.91	64.0«	68.8
1.005	50.00	8.31	49.330	0.540	0.0	0.0	0.0	0.90	63.6«	73.1
1.006	50.00	9.26	49.265	0.568	0.0	0.0	0.0	0.89	63.0«	76.9
3.000	50.00	5.34	49.250	0.035	0.0	0.0	0.0	0.82	14.5	4.7
1.007	50.00	9.83	49.100	0.649	0.0	0.0	0.0	1.31	208.9	87.9

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
4.000	23.770	0.158	150.4	0.069	5.00	0.0	0.600		o	150	Pipe/Conduit	
4.001	17.493	0.060	291.5	0.017	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.000	17.205	0.215	80.0	0.021	5.00	0.0	0.600		o	225	Pipe/Conduit	
4.002	13.714	0.050	274.3	0.030	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.003	16.146	0.060	269.1	0.019	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.004	12.976	0.050	259.5	0.016	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.005	15.410	0.060	256.8	0.010	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.006	32.650	0.110	296.8	0.026	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.007	78.932	0.480	164.4	0.014	0.00	0.0	0.600		o	300	Pipe/Conduit	
6.000	18.249	0.100	182.5	0.063	5.00	0.0		0.075	→|↓|→		Porous Car Park	
6.001	18.495	0.470	39.4	0.021	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.008	32.584	0.300	108.6	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
7.000	10.253	0.068	150.8	0.046	5.00	0.0	0.600		o	150	Pipe/Conduit	
7.001	28.614	0.191	149.8	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
8.000	22.180	0.150	147.9	0.045	5.00	0.0	0.600		o	150	Pipe/Conduit	
8.001	16.768	0.112	149.7	0.021	0.00	0.0	0.600		o	150	Pipe/Conduit	
9.000	16.903	0.113	149.6	0.047	5.00	0.0	0.600		o	150	Pipe/Conduit	
9.001	9.951	0.066	150.8	0.035	0.00	0.0	0.600		o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
4.000	50.00	5.48	49.850	0.069	0.0	0.0	0.0	0.82	14.4	9.3
4.001	50.00	5.80	49.720	0.086	0.0	0.0	0.0	0.92	64.7	11.6
5.000	50.00	5.20	49.950	0.021	0.0	0.0	0.0	1.46	58.2	2.8
4.002	50.00	6.05	49.660	0.137	0.0	0.0	0.0	0.94	66.8	18.6
4.003	50.00	6.33	49.610	0.156	0.0	0.0	0.0	0.95	67.4	21.1
4.004	50.00	6.55	49.550	0.172	0.0	0.0	0.0	0.97	68.7	23.3
4.005	50.00	6.81	49.500	0.182	0.0	0.0	0.0	0.98	69.0	24.6
4.006	50.00	7.41	49.440	0.208	0.0	0.0	0.0	0.91	64.1	28.2
4.007	50.00	8.49	49.330	0.222	0.0	0.0	0.0	1.22	86.5	30.1
6.000	50.00	6.55	49.550	0.063	0.0	0.0	0.0	0.20	435.4	8.5
6.001	50.00	6.74	49.450	0.084	0.0	0.0	0.0	1.61	28.4	11.4
1.008	50.00	10.27	49.000	0.955	0.0	0.0	0.0	1.25	49.9«	129.3
7.000	50.00	5.21	48.959	0.046	0.0	0.0	0.0	0.82	14.4	6.2
7.001	50.00	5.79	48.891	0.046	0.0	0.0	0.0	0.82	14.5	6.2
8.000	50.00	5.45	49.012	0.045	0.0	0.0	0.0	0.82	14.6	6.1
8.001	50.00	5.79	48.862	0.066	0.0	0.0	0.0	0.82	14.5	8.9
9.000	50.00	5.34	49.014	0.047	0.0	0.0	0.0	0.82	14.5	6.4
9.001	50.00	5.55	48.901	0.082	0.0	0.0	0.0	0.82	14.4	11.1

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
9.002	17.860	0.085	210.1	0.008	0.00	0.0	0.600		o	225	Pipe/Conduit	
8.002	11.181	0.050	223.6	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.009	24.066	0.600	40.1	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.010	51.085	1.700	30.1	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
10.000	12.470	0.100	124.7	0.060	5.00	0.0	0.600		o	150	Pipe/Conduit	
10.001	33.563	0.500	67.1	0.075	0.00	0.0	0.600		o	300	Pipe/Conduit	
10.002	48.188	0.160	301.2	0.063	0.00	0.0	0.600		o	300	Pipe/Conduit	
10.003	21.297	0.100	213.0	0.051	0.00	0.0	0.600		o	300	Pipe/Conduit	
10.004	29.031	0.110	263.9	0.071	0.00	0.0	0.600		oo	300	Double Pipe	
10.005	28.390	0.070	405.6	0.038	0.00	0.0	0.600		oo	300	Double Pipe	
11.000	29.169	1.440	20.3	0.064	5.00	0.0	0.600		o	150	Pipe/Conduit	
10.006	26.893	0.560	48.0	0.090	0.00	0.0	0.600		oo	300	Double Pipe	
10.007	20.680	0.950	21.8	0.067	0.00	0.0	0.600		oo	300	Double Pipe	
10.008	20.810	0.130	160.1	0.043	0.00	0.0	0.600		oo	300	Double Pipe	
10.009	14.765	0.050	295.3	0.021	0.00	0.0	0.600		oo	300	Double Pipe	
10.010	13.154	0.060	219.2	0.000	0.00	0.0	0.600		oo	300	Double Pipe	
10.011	17.535	0.060	292.3	0.044	0.00	0.0	0.600		oo	300	Double Pipe	
10.012	52.710	0.100	527.1	0.006	0.00	0.0	0.600		oo	300	Double Pipe	
12.000	22.518	0.150	150.1	0.037	5.00	0.0	0.600		oo	150	Double Pipe	

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)
9.002	50.00	5.88	48.835	0.090	0.0	0.0	0.0	0.90	35.7	12.2
8.002	50.00	6.09	48.750	0.156	0.0	0.0	0.0	0.87	34.6	21.1
1.009	50.00	10.52	48.700	1.157	0.0	0.0	0.0	1.59	28.2«	156.7
1.010	50.00	10.98	48.100	1.157	0.0	0.0	0.0	1.84	32.6«	156.7
10.000	50.00	5.23	49.550	0.060	0.0	0.0	0.0	0.90	15.9	8.1
10.001	50.00	5.52	49.300	0.135	0.0	0.0	0.0	1.92	135.8	18.3
10.002	50.00	6.41	48.800	0.198	0.0	0.0	0.0	0.90	63.7	26.8
10.003	50.00	6.74	48.640	0.249	0.0	0.0	0.0	1.07	75.9	33.7
10.004	50.00	7.25	48.540	0.320	0.0	0.0	0.0	0.96	136.1	43.3
10.005	50.00	7.86	48.430	0.358	0.0	0.0	0.0	0.77	109.5	48.5
11.000	50.00	5.22	49.850	0.064	0.0	0.0	0.0	2.25	39.7	8.7
10.006	50.00	8.06	48.360	0.512	0.0	0.0	0.0	2.27	321.5	69.3
10.007	50.00	8.16	47.800	0.579	0.0	0.0	0.0	3.38	478.5	78.4
10.008	50.00	8.44	46.850	0.622	0.0	0.0	0.0	1.24	175.3	84.2
10.009	50.00	8.71	46.720	0.643	0.0	0.0	0.0	0.91	128.6	87.1
10.010	50.00	8.91	46.670	0.643	0.0	0.0	0.0	1.06	149.5	87.1
10.011	50.00	9.23	46.610	0.687	0.0	0.0	0.0	0.91	129.3	93.0
10.012	50.00	10.53	46.550	0.693	0.0	0.0	0.0	0.68	95.8	93.8
12.000	50.00	5.46	46.650	0.037	0.0	0.0	0.0	0.82	28.9	5.0

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
12.001	15.191	0.100	151.9	0.023	0.00	0.0	0.600		oo	150	Double Pipe	
1.011	18.044	1.198	15.1	0.012	0.00	0.0	0.600		o	375	Pipe/Conduit	
13.000	36.310	1.900	19.1	0.039	5.00	0.0	0.600		o	150	Pipe/Conduit	
13.001	11.108	0.073	152.2	0.038	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.012	39.606	2.025	19.6	0.034	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.013	24.202	2.077	11.7	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
14.000	31.536	1.425	22.1	0.091	5.00	0.0	0.600		o	150	Pipe/Conduit	
14.001	14.541	0.100	145.4	0.057	0.00	0.0	0.600		o	300	Pipe/Conduit	
15.000	11.565	1.562	7.4	0.021	5.00	0.0	0.600		o	150	Pipe/Conduit	
15.001	4.936	0.725	6.8	0.016	0.00	0.0	0.600		o	225	Pipe/Conduit	
14.002	32.758	0.600	54.6	0.030	0.00	0.0	0.600		o	300	Pipe/Conduit	
14.003	27.527	0.800	34.4	0.050	0.00	0.0	0.600		o	300	Pipe/Conduit	
14.004	31.725	0.150	211.5	0.044	0.00	0.0	0.600		o	450	Pipe/Conduit	
14.005	23.754	0.300	79.2	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
16.000	18.908	1.000	18.9	0.017	5.00	0.0	0.600		o	150	Pipe/Conduit	
16.001	20.692	1.200	17.2	0.036	0.00	0.0	0.600		o	150	Pipe/Conduit	
17.000	34.234	1.900	18.0	0.033	5.00	0.0	0.600		o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
12.001	50.00	5.77	46.500	0.060	0.0	0.0	0.0	0.81	28.7	8.1
1.011	50.00	11.04	46.400	1.922	0.0	0.0	0.0	4.69	517.9	260.3
13.000	50.00	5.26	47.400	0.039	0.0	0.0	0.0	2.31	40.9	5.3
13.001	50.00	5.49	45.500	0.077	0.0	0.0	0.0	0.81	14.4	10.4
1.012	50.00	11.20	45.202	2.033	0.0	0.0	0.0	4.11	454.3	275.3
1.013	50.00	11.28	43.177	2.033	0.0	0.0	0.0	5.33	589.0	275.3
14.000	50.00	5.24	44.600	0.091	0.0	0.0	0.0	2.15	38.0	12.3
14.001	50.00	5.43	43.100	0.148	0.0	0.0	0.0	1.30	92.0	20.0
15.000	50.00	5.05	45.400	0.021	0.0	0.0	0.0	3.73	65.9	2.8
15.001	50.00	5.07	43.800	0.037	0.0	0.0	0.0	5.05	200.7	5.0
14.002	50.00	5.69	43.000	0.215	0.0	0.0	0.0	2.13	150.7	29.1
14.003	50.00	5.86	42.400	0.265	0.0	0.0	0.0	2.69	190.1	35.9
14.004	50.00	6.24	41.600	0.309	0.0	0.0	0.0	1.39	221.7	41.8
14.005	50.00	6.41	41.450	0.309	0.0	0.0	0.0	2.29	363.6	41.8
16.000	50.00	5.14	45.150	0.017	0.0	0.0	0.0	2.33	41.1	2.3
16.001	50.00	5.28	44.150	0.053	0.0	0.0	0.0	2.44	43.1	7.2
17.000	50.00	5.24	45.150	0.033	0.0	0.0	0.0	2.38	42.1	4.5

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
17.001	7.911	0.300	26.4	0.006	0.00	0.0	0.600		o	150	Pipe/Conduit	
16.002	22.359	1.500	14.9	0.019	0.00	0.0	0.600		o	150	Pipe/Conduit	
1.014	53.945	0.050	1078.9	0.000	0.00	0.0	0.600		[]	-17	Pipe/Conduit	
18.000	43.993	0.550	80.0	0.160	5.00	0.0		0.075	→|↓|→		Porous Car Park	
18.001	28.842	0.140	206.0	0.081	0.00	0.0		0.075	oo	300	Double Pipe	
18.002	23.285	0.250	93.1	0.087	0.00	0.0		0.075	oo	300	Double Pipe	
19.000	66.370	0.600	110.6	0.160	5.00	0.0	0.600		oo	300	Double Pipe	
20.000	18.606	0.100	186.1	0.040	5.00	0.0	0.600		o	225	Pipe/Conduit	
20.001	12.284	0.350	35.1	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
19.001	10.320	0.105	98.3	0.013	0.00	0.0	0.600		o	300	Pipe/Conduit	
19.002	29.998	0.060	500.0	0.050	0.00	0.0	0.600		o	300	Pipe/Conduit	
19.003	5.839	0.030	194.6	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
21.000	15.178	0.100	151.8	0.039	5.00	0.0	0.600		o	150	Pipe/Conduit	
21.001	16.681	0.120	139.0	0.034	0.00	0.0	0.600		o	150	Pipe/Conduit	
21.002	8.603	0.370	23.3	0.011	0.00	0.0	0.600		o	150	Pipe/Conduit	
18.003	24.291	0.080	303.6	0.051	0.00	0.0	0.600		oo	300	Double Pipe	
18.004	21.932	0.060	365.5	0.009	0.00	0.0	0.600		oo	300	Double Pipe	

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)
17.001	50.00	5.31	43.250	0.039	0.0	0.0	0.0	1.97	34.8	5.3
16.002	50.00	5.45	42.950	0.111	0.0	0.0	0.0	2.62	46.3	15.0
1.014	50.00	12.51	41.100	2.453	0.0	0.0	0.0	0.73	263.8«	332.2
18.000	50.00	6.83	48.900	0.160	0.0	0.0	0.0	0.40	982.0	21.7
18.001	50.00	9.74	48.350	0.241	0.0	0.0	0.0	0.17	23.4«	32.6
18.002	50.00	11.32	48.210	0.328	0.0	0.0	0.0	0.25	34.7«	44.4
19.000	50.00	5.74	48.750	0.160	0.0	0.0	0.0	1.49	211.3	21.7
20.000	50.00	5.32	48.750	0.040	0.0	0.0	0.0	0.96	38.0	5.4
20.001	50.00	5.42	48.650	0.040	0.0	0.0	0.0	2.22	88.1	5.4
19.001	50.00	5.85	48.150	0.213	0.0	0.0	0.0	1.59	112.1	28.8
19.002	50.00	6.57	48.050	0.263	0.0	0.0	0.0	0.70	49.2	35.6
19.003	50.00	6.65	47.990	0.263	0.0	0.0	0.0	1.12	79.4	35.6
21.000	50.00	5.31	48.700	0.039	0.0	0.0	0.0	0.81	14.4	5.3
21.001	50.00	5.64	48.600	0.073	0.0	0.0	0.0	0.85	15.0	9.9
21.002	50.00	5.71	48.480	0.084	0.0	0.0	0.0	2.10	37.1	11.4
18.003	50.00	11.78	47.960	0.726	0.0	0.0	0.0	0.90	126.8	98.3
18.004	50.00	12.22	47.800	0.735	0.0	0.0	0.0	0.82	115.4	99.5

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
22.000	34.059	0.300	113.5	0.067	5.00	0.0		0.075	→|↓|→		Porous Car Park	
23.000	39.205	0.300	130.7	0.042	5.00	0.0		0.075	→|↓|→		Porous Car Park	
22.001	31.401	0.250	125.6	0.060	0.00	0.0		0.075	→|↓|→		Porous Car Park	
22.002	26.173	0.635	41.2	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
18.005	28.839	0.310	93.0	0.043	0.00	0.0	0.600		o	375	Pipe/Conduit	
18.006	9.954	0.125	79.6	0.016	0.00	0.0	0.600		o	375	Pipe/Conduit	
24.000	32.831	0.300	109.4	0.038	5.00	0.0		0.075	→|↓|→		Porous Car Park	
24.001	10.371	0.070	148.2	0.010	0.00	0.0	0.600		o	150	Pipe/Conduit	
18.007	24.851	0.085	292.4	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
18.008	15.057	0.475	31.7	0.066	0.00	0.0	0.600		o	375	Pipe/Conduit	
18.009	14.025	0.525	26.7	0.031	0.00	0.0	0.600		o	375	Pipe/Conduit	
18.010	29.673	0.070	423.9	0.034	0.00	0.0	0.600		o	450	Pipe/Conduit	
25.000	25.315	0.200	126.6	0.080	5.00	0.0	0.600		o	150	Pipe/Conduit	
26.000	32.249	0.150	215.0	0.064	5.00	0.0	0.600		o	225	Pipe/Conduit	
26.001	25.280	0.120	210.7	0.033	0.00	0.0	0.600		o	225	Pipe/Conduit	
25.001	17.633	0.600	29.4	0.066	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
22.000	50.00	7.26	49.000	0.067	0.0	0.0	0.0	0.25	377.1	9.1
23.000	50.00	7.94	49.000	0.042	0.0	0.0	0.0	0.22	164.8	5.7
22.001	50.00	9.92	48.700	0.169	0.0	0.0	0.0	0.26	563.3	22.9
22.002	50.00	10.10	48.450	0.169	0.0	0.0	0.0	2.46	173.6	22.9
18.005	50.00	12.48	47.740	0.947	0.0	0.0	0.0	1.88	207.5	128.2
18.006	50.00	12.56	47.430	0.963	0.0	0.0	0.0	2.03	224.4	130.4
24.000	50.00	7.03	48.000	0.038	0.0	0.0	0.0	0.27	219.8	5.1
24.001	50.00	7.24	47.600	0.048	0.0	0.0	0.0	0.82	14.5	6.5
18.007	50.00	12.95	47.310	1.011	0.0	0.0	0.0	1.05	116.5«	136.9
18.008	50.00	13.03	47.225	1.077	0.0	0.0	0.0	3.23	356.5	145.8
18.009	50.00	13.10	46.750	1.108	0.0	0.0	0.0	3.52	388.5	150.0
18.010	50.00	13.60	46.150	1.142	0.0	0.0	0.0	0.98	156.0	154.6
25.000	50.00	5.47	48.150	0.080	0.0	0.0	0.0	0.89	15.8	10.8
26.000	50.00	5.61	48.070	0.064	0.0	0.0	0.0	0.89	35.3	8.7
26.001	50.00	6.08	47.920	0.097	0.0	0.0	0.0	0.90	35.7	13.1
25.001	50.00	6.18	47.800	0.243	0.0	0.0	0.0	2.91	205.8	32.9

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
25.002	39.584	0.970	40.8	0.083	0.00	0.0	0.600		o	300	Pipe/Conduit	
18.011	16.360	0.555	29.5	0.061	0.00	0.0	0.600		o	450	Pipe/Conduit	
18.012	17.557	0.040	438.9	0.041	0.00	0.0	0.600		o	450	Pipe/Conduit	
27.000	26.898	0.225	119.5	0.053	5.00	0.0	0.600		o	150	Pipe/Conduit	
27.001	36.677	1.000	36.7	0.079	0.00	0.0	0.600		o	225	Pipe/Conduit	
27.002	9.816	0.515	19.1	0.047	0.00	0.0	0.600		o	225	Pipe/Conduit	
18.013	37.942	0.085	446.4	0.026	0.00	0.0	0.600		o	525	Pipe/Conduit	
28.000	29.813	0.264	112.9	0.032	5.00	0.0	0.600		o	150	Pipe/Conduit	
29.000	24.597	0.164	150.0	0.050	5.00	0.0	0.600		o	150	Pipe/Conduit	
28.001	26.956	0.120	224.6	0.043	0.00	0.0	0.600		o	225	Pipe/Conduit	
28.002	12.189	0.054	225.0	0.049	0.00	0.0	0.600		o	225	Pipe/Conduit	
28.003	29.386	0.100	293.9	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
30.000	28.087	0.187	150.2	0.055	5.00	0.0	0.600		o	150	Pipe/Conduit	
30.001	8.275	0.301	27.5	0.006	0.00	0.0	0.600		o	150	Pipe/Conduit	
28.004	72.637	0.100	726.4	0.022	0.00	0.0	0.600		o	225	Pipe/Conduit	
28.005	47.939	2.087	23.0	0.000	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)
25.002	50.00	6.44	47.200	0.326	0.0	0.0	0.0	2.47	174.5	44.1
18.011	50.00	13.67	46.080	1.529	0.0	0.0	0.0	3.76	597.3	207.0
18.012	50.00	13.98	45.525	1.570	0.0	0.0	0.0	0.96	153.3«	212.6
27.000	50.00	5.49	47.600	0.053	0.0	0.0	0.0	0.92	16.2	7.2
27.001	50.00	5.77	47.300	0.132	0.0	0.0	0.0	2.17	86.2	17.9
27.002	50.00	5.82	46.300	0.179	0.0	0.0	0.0	3.01	119.7	24.2
18.013	50.00	14.58	45.485	1.775	0.0	0.0	0.0	1.05	228.1«	240.4
28.000	50.00	5.53	48.200	0.032	0.0	0.0	0.0	0.94	16.7	4.3
29.000	50.00	5.50	48.100	0.050	0.0	0.0	0.0	0.82	14.5	6.8
28.001	50.00	6.04	47.861	0.125	0.0	0.0	0.0	0.87	34.5	16.9
28.002	50.00	6.28	47.741	0.174	0.0	0.0	0.0	0.87	34.5	23.6
28.003	50.00	6.92	47.687	0.174	0.0	0.0	0.0	0.76	30.1	23.6
30.000	50.00	5.57	48.150	0.055	0.0	0.0	0.0	0.82	14.4	7.4
30.001	50.00	5.64	47.963	0.061	0.0	0.0	0.0	1.93	34.1	8.3
28.004	50.00	9.46	47.587	0.257	0.0	0.0	0.0	0.48	19.0«	34.8
28.005	50.00	9.75	47.487	0.257	0.0	0.0	0.0	2.74	109.0	34.8

Network Design Table for north - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
18.014	53.600	0.350	153.1	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
31.000	18.065	0.300	60.2	0.083	5.00	0.0		0.075	→|↓|→		Porous Car Park	
31.001	13.585	0.150	90.6	0.023	0.00	0.0		0.075	→|↓|→		Porous Car Park	
31.002	16.513	0.073	226.2	0.000	0.00	0.0		0.075	o	225	Pipe/Conduit	
31.003	15.754	0.070	225.1	0.015	0.00	0.0	0.600		o	225	Pipe/Conduit	
32.000	40.475	0.266	152.2	0.187	5.00	0.0	0.600		o	225	Pipe/Conduit	
32.001	18.863	0.084	224.6	0.012	0.00	0.0	0.600		o	225	Pipe/Conduit	
31.004	31.536	0.140	225.3	0.034	0.00	0.0	0.600		o	225	Pipe/Conduit	
31.005	32.558	0.145	224.5	0.030	0.00	0.0	0.600		o	225	Pipe/Conduit	
33.000	22.481	0.300	74.9	0.014	5.00	0.0	0.600		o	225	Pipe/Conduit	
31.006	13.094	0.051	256.7	0.008	0.00	0.0	0.600		o	225	Pipe/Conduit	
31.007	26.316	0.089	295.7	0.010	0.00	0.0	0.600		o	225	Pipe/Conduit	
31.008	17.435	0.100	174.4	0.019	0.00	0.0		0.045	3 \=/	225	1:3 Swale	
31.009	49.820	1.120	44.5	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
18.015	42.413	4.000	10.6	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.015	18.796	1.000	18.8	0.000	0.00	0.0	0.600		o	450	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)
18.014	50.00	15.12	45.400	2.032	0.0	0.0	0.0	1.64	260.9«	275.2
31.000	50.00	5.72	47.378	0.083	0.0	0.0	0.0	0.42	2615.4	11.2
31.001	50.00	6.41	47.078	0.106	0.0	0.0	0.0	0.33	904.1	14.4
31.002	50.00	8.52	46.928	0.106	0.0	0.0	0.0	0.13	5.2«	14.4
31.003	50.00	8.83	46.855	0.121	0.0	0.0	0.0	0.87	34.5	16.4
32.000	50.00	5.64	47.135	0.187	0.0	0.0	0.0	1.06	42.0	25.3
32.001	50.00	6.00	46.869	0.199	0.0	0.0	0.0	0.87	34.5	26.9
31.004	50.00	9.43	46.785	0.354	0.0	0.0	0.0	0.87	34.5«	47.9
31.005	50.00	10.06	46.645	0.384	0.0	0.0	0.0	0.87	34.5«	52.0
33.000	50.00	5.25	46.800	0.014	0.0	0.0	0.0	1.51	60.1	1.9
31.006	50.00	10.33	46.500	0.406	0.0	0.0	0.0	0.81	32.3«	55.0
31.007	50.00	10.91	46.449	0.416	0.0	0.0	0.0	0.76	30.0«	56.3
31.008	50.00	11.79	46.360	0.435	0.0	0.0	0.0	0.33	33.3«	58.9
31.009	50.00	12.21	46.250	0.435	0.0	0.0	0.0	1.97	78.2	58.9
18.015	50.00	15.23	45.050	2.467	0.0	0.0	0.0	6.27	997.3	334.1
1.015	50.00	15.30	41.050	4.920	0.0	0.0	0.0	4.71	748.5	666.2

Free Flowing Outfall Details for north - 1in 1 year

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.015		40.800	40.050	0.000	0	0

Simulation Criteria for north - 1in 1 year

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Storm Duration (mins)	30
Ratio R	0.400		

Online Controls for north - 1in 1 year

Hydro-Brake® Optimum Manhole: 4, DS/PN: 1.002, Volume (m³): 151.8

Unit Reference	MD-SHE-0284-5000-1840-5000
Design Head (m)	1.840
Design Flow (l/s)	50.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	284
Invert Level (m)	49.560
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	2100

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.840	50.0
Flush-Flo™	0.572	50.0
Kick-Flo®	1.249	41.5
Mean Flow over Head Range	-	42.9

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.9	1.200	43.4	3.000	63.3	7.000	95.6
0.200	29.3	1.400	43.8	3.500	68.2	7.500	98.8
0.300	46.7	1.600	46.7	4.000	72.8	8.000	102.0
0.400	48.9	1.800	49.5	4.500	77.1	8.500	105.0
0.500	49.8	2.000	52.1	5.000	81.1	9.000	108.0
0.600	50.0	2.200	54.5	5.500	85.0	9.500	110.9
0.800	49.1	2.400	56.8	6.000	88.6		
1.000	47.5	2.600	59.1	6.500	92.2		

Orifice Manhole: 10, DS/PN: 1.007, Volume (m³): 5.7

Diameter (m) 0.249 Discharge Coefficient 0.600 Invert Level (m) 49.100

Hydro-Brake® Optimum Manhole: 22, DS/PN: 1.008, Volume (m³): 14.2

Unit Reference	MD-SFP-0223-2900-1000-2900
Design Head (m)	1.000
Design Flow (l/s)	29.0
Flush-Flo™	Calculated
Objective	Future Proof
Application	Surface
Sump Available	Yes
Diameter (mm)	223
Invert Level (m)	49.000
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	29.0

Hydro-Brake® Optimum Manhole: 22, DS/PN: 1.008, Volume (m³): 14.2

Control Points	Head (m)	Flow (l/s)
Flush-Flo™	0.325	28.9
Kick-Flo®	0.691	24.3
Mean Flow over Head Range	-	23.7

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.9	1.200	31.6	3.000	49.1	7.000	74.0
0.200	23.3	1.400	34.0	3.500	52.9	7.500	76.6
0.300	28.9	1.600	36.3	4.000	56.4	8.000	79.0
0.400	28.7	1.800	38.4	4.500	59.8	8.500	81.4
0.500	27.9	2.000	40.4	5.000	62.9	9.000	83.7
0.600	26.6	2.200	42.3	5.500	65.9	9.500	85.9
0.800	26.1	2.400	44.1	6.000	68.7		
1.000	29.0	2.600	45.8	6.500	71.4		

Complex Manhole: 31, DS/PN: 1.009, Volume (m³): 3.3

Hydro-Brake® Optimum

Unit Reference	MD-SCL-0147-1200-1000-1200
Design Head (m)	1.000
Design Flow (l/s)	12.0
Flush-Flo™	Calculated
Objective	Minimise blockage risk
Application	Surface
Sump Available	Yes
Diameter (mm)	147
Invert Level (m)	48.700
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	12.0
Flush-Flo™	0.236	12.0
Kick-Flo®	0.600	9.4
Mean Flow over Head Range	-	10.0

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.8	0.800	10.8	2.000	16.6	4.000	23.1
0.200	11.9	1.000	12.0	2.200	17.4	4.500	24.4
0.300	11.8	1.200	13.0	2.400	18.1	5.000	25.7
0.400	11.4	1.400	14.0	2.600	18.8	5.500	26.9
0.500	10.8	1.600	14.9	3.000	20.1	6.000	28.1
0.600	9.5	1.800	15.8	3.500	21.7	6.500	29.2

Hydro-Brake® Optimum

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
7.000	30.2	8.000	32.2	9.000	34.1		
7.500	31.2	8.500	33.2	9.500	35.0		

Weir

Discharge Coef 0.544 Width (m) 0.131 Invert Level (m) 49.500

Hydro-Brake® Optimum Manhole: 38, DS/PN: 10.005, Volume (m³): 7.1

Unit Reference	MD-SHE-0383-1000-1900-1000
Design Head (m)	1.900
Design Flow (l/s)	100.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	383
Invert Level (m)	48.430
Minimum Outlet Pipe Diameter (mm)	450
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.900	99.9
Flush-Flo™	0.658	99.6
Kick-Flo®	1.360	85.0
Mean Flow over Head Range	-	83.9

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	10.7	1.200	92.6	3.000	124.8	7.000	188.8
0.200	38.1	1.400	86.2	3.500	134.5	7.500	195.3
0.300	72.7	1.600	91.9	4.000	143.6	8.000	201.5
0.400	95.4	1.800	97.4	4.500	152.1	8.500	207.6
0.500	98.2	2.000	102.5	5.000	160.1	9.000	213.5
0.600	99.4	2.200	107.3	5.500	167.8	9.500	219.2
0.800	98.9	2.400	112.0	6.000	175.0		
1.000	96.8	2.600	116.4	6.500	182.0		

Hydro-Brake® Optimum Manhole: 49, DS/PN: 1.011, Volume (m³): 9.8

Unit Reference	MD-SCL-0375-1080-0700-1080
Design Head (m)	0.700
Design Flow (l/s)	108.0
Flush-Flo™	Calculated
Objective	Minimise blockage risk
Application	Surface
Sump Available	Yes
Diameter (mm)	375
Invert Level (m)	46.400
Minimum Outlet Pipe Diameter (mm)	450
Suggested Manhole Diameter (mm)	2100

Hydro-Brake® Optimum Manhole: 49, DS/PN: 1.011, Volume (m³): 9.8

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.700	108.0
Flush-Flo™	0.425	108.0
Kick-Flo®	0.613	101.3
Mean Flow over Head Range	-	71.5

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	11.7	1.200	140.3	3.000	219.4	7.000	332.5
0.200	41.3	1.400	151.2	3.500	236.6	7.500	339.9
0.300	78.1	1.600	161.4	4.000	252.6	8.000	351.3
0.400	107.7	1.800	170.9	4.500	267.6	8.500	362.4
0.500	106.9	2.000	180.0	5.000	281.8	9.000	373.1
0.600	102.2	2.200	188.5	5.500	295.3	9.500	383.6
0.800	115.2	2.400	196.7	6.000	308.2		
1.000	128.4	2.600	204.6	6.500	320.6		

Orifice Manhole: 109, DS/PN: 28.003, Volume (m³): 2.3

Diameter (m) 0.095 Discharge Coefficient 0.600 Invert Level (m) 47.687

Hydro-Brake® Optimum Manhole: 114, DS/PN: 18.014, Volume (m³): 11.9

Unit Reference	MD-SHE-0284-4700-1200-4700
Design Head (m)	1.200
Design Flow (l/s)	47.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	284
Invert Level (m)	45.400
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	47.0
Flush-Flo™	0.456	47.0
Kick-Flo®	0.894	40.8
Mean Flow over Head Range	-	38.9

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.9	0.500	46.9	1.200	47.0	2.000	60.1
0.200	29.3	0.600	46.4	1.400	50.6	2.200	63.0
0.300	45.5	0.800	43.8	1.600	54.0	2.400	65.7
0.400	46.8	1.000	43.1	1.800	57.1	2.600	68.3

Hydro-Brake® Optimum Manhole: 114, DS/PN: 18.014, Volume (m³): 11.9

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
3.000	73.2	5.000	93.8	7.000	110.6	9.000	125.0
3.500	78.9	5.500	98.3	7.500	114.3	9.500	128.4
4.000	84.2	6.000	102.5	8.000	118.0		
4.500	89.1	6.500	106.6	8.500	121.6		

Orifice Manhole: 116, DS/PN: 31.001, Volume (m³): 106.9

Diameter (m) 0.133 Discharge Coefficient 0.600 Invert Level (m) 47.078

Hydro-Brake® Optimum Manhole: 128, DS/PN: 18.015, Volume (m³): 11.3

Unit Reference	MD-SHE-0285-4500-0750-4500
Design Head (m)	0.750
Design Flow (l/s)	45.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	285
Invert Level (m)	45.050
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.750	44.9
Flush-Flo™	0.405	45.0
Kick-Flo®	0.632	41.4
Mean Flow over Head Range	-	34.4

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.9	1.200	56.4	3.000	87.9	7.000	132.9
0.200	29.3	1.400	60.7	3.500	94.8	7.500	137.5
0.300	44.0	1.600	64.8	4.000	101.1	8.000	140.8
0.400	45.0	1.800	68.6	4.500	107.1	8.500	145.2
0.500	44.4	2.000	72.2	5.000	112.8	9.000	149.5
0.600	42.4	2.200	75.6	5.500	118.2	9.500	153.6
0.800	46.4	2.400	78.9	6.000	123.3		
1.000	51.6	2.600	82.0	6.500	128.2		

Complex Manhole: 129, DS/PN: 1.015, Volume (m³): 26.1

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0226-2500-0450-2500
Design Head (m)	0.450
Design Flow (l/s)	25.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes

Hydro-Brake® Optimum

Diameter (mm)	226
Invert Level (m)	41.050
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.450	25.0
Flush-Flo™	0.299	25.0
Kick-Flo®	0.410	23.9
Mean Flow over Head Range	-	17.6

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.6	1.200	40.0	3.000	62.3	7.000	94.0
0.200	22.5	1.400	43.1	3.500	67.2	7.500	97.3
0.300	25.0	1.600	46.0	4.000	71.7	8.000	100.6
0.400	24.1	1.800	48.7	4.500	75.9	8.500	103.7
0.500	26.3	2.000	51.2	5.000	79.1	9.000	106.7
0.600	28.7	2.200	53.6	5.500	83.1	9.500	109.7
0.800	32.9	2.400	55.9	6.000	86.9		
1.000	36.6	2.600	58.1	6.500	90.5		

Orifice

Diameter (m) 0.208 Discharge Coefficient 0.600 Invert Level (m) 41.500

Offline Controls for north - 1in 1 year

Weir Manhole: 49, DS/PN: 1.011, Loop to PN: 1.013

Discharge Coef 0.544 Width (m) 0.600 Invert Level (m) 46.900

Storage Structures for north - 1in 1 year

Porous Car Park Pipe: 1.000

Manning's N	0.075	Width (m)	8.1
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	28.3
Membrane Percolation (mm/hr)	1000	Slope (1:X)	37.8
Max Percolation (l/s)	63.7	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	50.450		

Porous Car Park Pipe: 2.000

Manning's N	0.075	Width (m)	14.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	36.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	103.2
Max Percolation (l/s)	140.5	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	50.750		

Porous Car Park Pipe: 6.000

Manning's N	0.075	Width (m)	11.8
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	18.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	182.5
Max Percolation (l/s)	59.8	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	49.550		

Tank or Pond Manhole: 22, DS/PN: 1.008

Invert Level (m) 49.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	282.0	1.000	782.0

Tank or Pond Manhole: 31, DS/PN: 1.009

Invert Level (m) 48.700

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	8.0	1.000	278.0

Porous Car Park Manhole: 38, DS/PN: 10.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	31.0
Max Percolation (l/s)	43.1	Slope (1:X)	205.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	49.800	Membrane Depth (mm)	0

Tank or Pond Manhole: 49, DS/PN: 1.011

Invert Level (m) 46.400

Tank or Pond Manhole: 49, DS/PN: 1.011

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	173.0	0.700	375.0

Porous Car Park Manhole: 61, DS/PN: 14.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	9.5
Membrane Percolation (mm/hr)	1000	Length (m)	38.0
Max Percolation (l/s)	100.3	Slope (1:X)	200.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	41.900	Membrane Depth (mm)	0

Porous Car Park Pipe: 18.000

Manning's N	0.075	Width (m)	7.8
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	44.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	80.0
Max Percolation (l/s)	95.3	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	48.900		

Porous Car Park Manhole: 73, DS/PN: 20.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.0
Membrane Percolation (mm/hr)	1000	Length (m)	18.0
Max Percolation (l/s)	20.0	Slope (1:X)	186.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	49.400	Membrane Depth (mm)	0

Porous Car Park Manhole: 76, DS/PN: 19.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.2
Membrane Percolation (mm/hr)	1000	Length (m)	31.0
Max Percolation (l/s)	44.8	Slope (1:X)	520.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	49.400	Membrane Depth (mm)	0

Porous Car Park Manhole: 81, DS/PN: 18.004

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.5
Membrane Percolation (mm/hr)	1000	Length (m)	22.8
Max Percolation (l/s)	22.2	Slope (1:X)	365.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	48.850	Membrane Depth (mm)	0

Porous Car Park Pipe: 22.000

Manning's N	0.075	Width (m)	7.7
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	34.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	113.5
Max Percolation (l/s)	72.8	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	49.000		

Porous Car Park Pipe: 23.000

Manning's N	0.075	Width (m)	3.8
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	39.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	130.7
Max Percolation (l/s)	41.4	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	49.000		

Porous Car Park Pipe: 22.001

Manning's N	0.075	Width (m)	9.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	31.4
Membrane Percolation (mm/hr)	1000	Slope (1:X)	125.6
Max Percolation (l/s)	82.9	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	150
Invert Level (m)	48.700		

Porous Car Park Manhole: 87, DS/PN: 18.006

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.0
Membrane Percolation (mm/hr)	1000	Length (m)	20.3
Max Percolation (l/s)	22.6	Slope (1:X)	86.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	48.400	Membrane Depth (mm)	0

Porous Car Park Pipe: 24.000

Manning's N	0.075	Width (m)	3.4
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	32.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	109.4
Max Percolation (l/s)	31.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	0
Invert Level (m)	48.000		

Complex Manhole: 109, DS/PN: 28.003

Filter Drain

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.450
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	285.0
Invert Level (m)	47.591	Cap Volume Depth (m)	0.000
Trench Width (m)	0.9	Cap Infiltration Depth (m)	0.000
Trench Length (m)	57.0		

Swale

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	1.00000	Base Width (m)	0.9
Infiltration Coefficient Side (m/hr)	0.00000	Length (m)	57.0
Safety Factor	2.0	Side Slope (1:X)	2.0
Porosity	1.00	Slope (1:X)	285.0
Invert Level (m)	48.991	Cap Volume Depth (m)	0.000

Swale

Cap Infiltration Depth (m) 0.000 Include Swale Volume Yes

Complex Manhole: 112, DS/PN: 28.004

Filter Drain

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.450
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	50.0
Invert Level (m)	47.100	Cap Volume Depth (m)	0.000
Trench Width (m)	0.9	Cap Infiltration Depth (m)	0.000
Trench Length (m)	31.0		

Swale

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	1.00000	Length (m)	30.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.0
Safety Factor	2.0	Slope (1:X)	50.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	48.300	Cap Infiltration Depth (m)	0.000
Base Width (m)	0.9	Include Swale Volume	Yes

Complex Manhole: 113, DS/PN: 28.005

Filter Drain

Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.450
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	2.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	800.0
Invert Level (m)	47.000	Cap Volume Depth (m)	0.000
Trench Width (m)	0.9	Cap Infiltration Depth (m)	0.000
Trench Length (m)	66.0		

Swale

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	1.00000	Length (m)	66.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.0
Safety Factor	2.0	Slope (1:X)	800.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	48.400	Cap Infiltration Depth (m)	0.000
Base Width (m)	0.9	Include Swale Volume	Yes

Tank or Pond Manhole: 114, DS/PN: 18.014

Invert Level (m) 45.400

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	554.0	1.200	1467.0

Porous Car Park Pipe: 31.000

Manning's N	0.075	Width (m)	25.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	18.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	60.2
Max Percolation (l/s)	128.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	1
Invert Level (m)	47.378		

Porous Car Park Pipe: 31.001

Manning's N	0.075	Width (m)	11.1
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	13.6
Membrane Percolation (mm/hr)	1000	Slope (1:X)	90.6
Max Percolation (l/s)	41.9	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	1
Invert Level (m)	47.078		

Porous Car Park Manhole: 119, DS/PN: 32.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	13.8
Membrane Percolation (mm/hr)	1000	Length (m)	74.0
Max Percolation (l/s)	283.7	Slope (1:X)	390.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	48.030	Membrane Depth (mm)	0

Tank or Pond Manhole: 128, DS/PN: 18.015

Invert Level (m) 45.050

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	559.0	0.750	1170.0

Tank or Pond Manhole: 129, DS/PN: 1.015

Invert Level (m) 41.050

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1192.0	0.750	5177.0

North-western Parcel

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for northwest - 1in 1 year

Pipe Sizes Circular Manhole Sizes Adoptable

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	26.250	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	1000

Designed with Level Soffits

Network Design Table for northwest - 1in 1 year

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
34.000	20.881	0.800	26.1	0.060	5.00	0.0		0.075	→|↓|→		Porous Car Park	
34.001	23.749	0.740	32.1	0.060	0.00	0.0		0.075	→|↓|→		Porous Car Park	
34.002	41.321	0.138	299.4	0.070	0.00	0.0		0.050	o	600	Pipe/Conduit	
34.003	10.061	0.050	201.2	0.000	0.00	0.0		0.075	o	300	Pipe/Conduit	
35.000	53.210	1.430	37.2	0.111	5.00	0.0	0.600		o	225	Pipe/Conduit	
34.004	10.720	0.050	214.4	0.070	0.00	0.0	0.600		o	300	Pipe/Conduit	
34.005	31.125	0.050	622.5	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
34.006	17.362	3.300	5.3	0.070	0.00	0.0	0.600		o	300	Pipe/Conduit	
36.000	20.775	0.400	51.9	0.070	5.00	0.0		0.075	→|↓|→		Porous Car Park	
36.001	18.597	1.350	13.8	0.000	0.00	0.0		0.075	→|↓|→		Porous Car Park	
36.002	19.644	1.310	15.0	0.008	0.00	0.0		0.075	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
34.000	50.00	5.73	48.730	0.060	0.0	0.0	0.0	0.48	540.9	8.1
34.001	50.00	6.63	47.930	0.120	0.0	0.0	0.0	0.44	612.4	16.2
34.002	50.00	8.74	47.160	0.190	0.0	0.0	0.0	0.33	92.3	25.7
34.003	50.00	9.75	47.050	0.190	0.0	0.0	0.0	0.17	11.8«	25.7
35.000	50.00	5.41	48.430	0.111	0.0	0.0	0.0	2.15	85.5	15.0
34.004	50.00	9.91	47.000	0.371	0.0	0.0	0.0	1.07	75.6	50.2
34.005	50.00	10.63	46.950	0.371	0.0	0.0	0.0	0.72	79.4	50.2
34.006	50.00	10.68	46.900	0.441	0.0	0.0	0.0	6.90	487.6	59.7
36.000	50.00	5.95	49.000	0.070	0.0	0.0	0.0	0.36	1197.9	9.5
36.001	50.00	6.49	48.600	0.070	0.0	0.0	0.0	0.58	716.5	9.5
36.002	50.00	7.02	47.250	0.078	0.0	0.0	0.0	0.61	43.3	10.6

Network Design Table for northwest - 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
37.000	16.155	0.110	146.9	0.102	5.00	0.0	0.600		o	300	Pipe/Conduit	
36.003	11.603	0.660	17.6	0.015	0.00	0.0	0.600		o	300	Pipe/Conduit	
36.004	15.357	0.150	102.4	0.011	0.00	0.0	0.600		o	300	Pipe/Conduit	
38.000	26.016	0.470	55.4	0.033	5.00	0.0	0.600		o	225	Pipe/Conduit	
36.005	23.306	1.595	14.6	0.072	0.00	0.0	0.600		o	300	Pipe/Conduit	
34.007	32.826	0.050	656.5	0.019	0.00	0.0	0.600		o	300	Pipe/Conduit	
34.008	29.906	3.150	9.5	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
39.000	10.503	0.400	26.3	0.028	5.00	0.0	0.600		o	150	Pipe/Conduit	
39.001	15.818	1.000	15.8	0.052	0.00	0.0	0.600		o	150	Pipe/Conduit	
39.002	13.709	0.900	15.2	0.025	0.00	0.0	0.600		o	150	Pipe/Conduit	
34.009	28.325	0.100	283.3	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
40.000	31.516	1.100	28.7	0.069	5.00	0.0	0.600		o	150	Pipe/Conduit	
34.010	8.968	1.600	5.6	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
34.011	51.937	5.000	10.4	0.000	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)
37.000	50.00	5.21	46.050	0.102	0.0	0.0	0.0	1.30	91.6	13.8
36.003	50.00	7.08	45.940	0.195	0.0	0.0	0.0	3.77	266.3	26.4
36.004	50.00	7.24	45.280	0.206	0.0	0.0	0.0	1.55	109.8	27.9
38.000	50.00	5.25	45.600	0.033	0.0	0.0	0.0	1.76	70.0	4.5
36.005	50.00	7.33	45.130	0.311	0.0	0.0	0.0	4.13	292.2	42.1
34.007	50.00	11.58	43.600	0.771	0.0	0.0	0.0	0.61	42.9«	104.4
34.008	50.00	11.68	43.550	0.771	0.0	0.0	0.0	5.13	362.7	104.4
39.000	50.00	5.09	42.850	0.028	0.0	0.0	0.0	1.97	34.9	3.8
39.001	50.00	5.19	42.450	0.080	0.0	0.0	0.0	2.55	45.0	10.8
39.002	50.00	5.28	41.450	0.105	0.0	0.0	0.0	2.59	45.8	14.2
34.009	50.00	12.18	40.400	0.876	0.0	0.0	0.0	0.93	65.7«	118.6
40.000	50.00	5.28	41.400	0.069	0.0	0.0	0.0	1.89	33.4	9.3
34.010	50.00	12.21	40.300	0.945	0.0	0.0	0.0	5.56	221.2	128.0
34.011	50.00	12.42	38.700	0.945	0.0	0.0	0.0	4.08	162.4	128.0

Surcharged Outfall Details for northwest - 1in 1 year

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
34.011	46	34.000	33.700	0.000	1350	0

Datum (m) 33.700 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1440	0.000	5760	0.000	10080	0.000	14400	0.000	18720	0.000
2880	0.000	7200	0.000	11520	0.000	15840	0.000	20160	0.000
4320	0.000	8640	0.000	12960	0.000	17280	0.000		

Simulation Criteria for northwest - 1in 1 year

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Storm Duration (mins)	30
Ratio R	0.400		

Online Controls for northwest - 1in 1 year

Orifice Manhole: 131, DS/PN: 34.001, Volume (m³): 23.4

Diameter (m) 0.184 Discharge Coefficient 0.600 Invert Level (m) 47.930

Orifice Manhole: 133, DS/PN: 34.003, Volume (m³): 12.9

Diameter (m) 0.086 Discharge Coefficient 0.600 Invert Level (m) 47.050

Hydro-Brake® Optimum Manhole: 137, DS/PN: 34.006, Volume (m³): 4.0

Unit Reference	MD-SHE-0170-1300-0500-1300
Design Head (m)	0.500
Design Flow (l/s)	13.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	170
Invert Level (m)	46.900
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.500	13.0
Flush-Flo™	0.248	13.0
Kick-Flo®	0.409	11.8
Mean Flow over Head Range	-	10.1

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.0	1.200	19.7	3.000	30.6	7.000	46.0
0.200	12.9	1.400	21.2	3.500	32.9	7.500	47.7
0.300	12.9	1.600	22.6	4.000	35.1	8.000	49.2
0.400	12.0	1.800	23.9	4.500	37.2	8.500	50.8
0.500	13.0	2.000	25.2	5.000	39.1	9.000	52.3
0.600	14.2	2.200	26.3	5.500	40.7	9.500	53.7
0.800	16.2	2.400	27.5	6.000	42.6		
1.000	18.1	2.600	28.5	6.500	44.3		

Orifice Manhole: 139, DS/PN: 36.001, Volume (m³): 65.3

Diameter (m) 0.076 Discharge Coefficient 0.600 Invert Level (m) 48.600

Orifice Manhole: 140, DS/PN: 36.002, Volume (m³): 22.5

Diameter (m) 0.107 Discharge Coefficient 0.600 Invert Level (m) 47.250

Hydro-Brake® Optimum Manhole: 147, DS/PN: 34.008, Volume (m³): 3.3

Unit Reference	MD-SCL-0209-2700-0750-2700
Design Head (m)	0.750
Design Flow (l/s)	27.0
Flush-Flo™	Calculated
Objective	Minimise blockage risk

Hydro-Brake® Optimum Manhole: 147, DS/PN: 34.008, Volume (m³): 3.3

Application	Surface
Sump Available	Yes
Diameter (mm)	209
Invert Level (m)	43.550
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.750	27.0
Flush-Flo™	0.267	26.9
Kick-Flo®	0.528	22.8
Mean Flow over Head Range	-	21.0

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.9	1.200	33.8	3.000	52.5	7.000	79.1
0.200	22.3	1.400	36.4	3.500	56.5	7.500	81.8
0.300	26.8	1.600	38.8	4.000	60.3	8.000	84.0
0.400	25.8	1.800	41.0	4.500	63.9	8.500	86.6
0.500	23.8	2.000	43.2	5.000	67.2	9.000	89.2
0.600	24.3	2.200	45.2	5.500	70.4	9.500	91.6
0.800	27.8	2.400	47.1	6.000	73.4		
1.000	31.0	2.600	49.0	6.500	76.3		

Complex Manhole: 153, DS/PN: 34.010, Volume (m³): 3.2

Orifice

Diameter (m) 0.095 Discharge Coefficient 0.600 Invert Level (m) 40.300

Orifice

Diameter (m) 0.229 Discharge Coefficient 0.600 Invert Level (m) 40.568

Storage Structures for northwest - 1in 1 year

Porous Car Park Pipe: 34.000

Manning's N	0.075	Width (m)	6.6
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	20.9
Membrane Percolation (mm/hr)	1000	Slope (1:X)	26.1
Max Percolation (l/s)	38.3	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	48.730		

Porous Car Park Pipe: 34.001

Manning's N	0.075	Width (m)	8.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	23.7
Membrane Percolation (mm/hr)	1000	Slope (1:X)	32.1
Max Percolation (l/s)	54.1	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	47.930		

Porous Car Park Manhole: 133, DS/PN: 34.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	48.0
Max Percolation (l/s)	80.0	Slope (1:X)	300.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	47.050	Membrane Depth (mm)	230

Tank or Pond Manhole: 137, DS/PN: 34.006

Invert Level (m) 46.900

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	222.0	0.500	405.0

Porous Car Park Pipe: 36.000

Manning's N	0.075	Width (m)	18.3
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	20.8
Membrane Percolation (mm/hr)	1000	Slope (1:X)	51.9
Max Percolation (l/s)	105.6	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	49.000		

Porous Car Park Pipe: 36.001

Manning's N	0.075	Width (m)	9.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	18.6
Membrane Percolation (mm/hr)	1000	Slope (1:X)	13.8
Max Percolation (l/s)	47.5	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	48.600		

Tank or Pond Manhole: 147, DS/PN: 34.008

Invert Level (m) 43.550

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	130.0	0.750	276.0

Tank or Pond Manhole: 153, DS/PN: 34.010

Invert Level (m) 40.300

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	163.0	0.500	261.0

Southern Parcel

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for southern- 1in 1 year

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	19.800	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for southern- 1in 1 year

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
41.000	35.080	0.450	78.0	0.086	5.00	0.0		0.075	→|↓|→		Porous Car Park	
41.001	21.223	0.200	106.1	0.000	0.00	0.0		0.075	→|↓|→		Porous Car Park	
41.002	19.345	0.050	386.9	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
41.003	25.490	0.200	127.5	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
42.000	38.460	0.450	85.5	0.098	5.00	0.0		0.075	→|↓|→		Porous Car Park	
42.001	33.812	0.650	52.0	0.021	0.00	0.0	0.600		o	225	Pipe/Conduit	
42.002	22.685	0.170	133.4	0.054	0.00	0.0	0.600		o	225	Pipe/Conduit	
42.003	16.196	0.150	108.0	0.040	0.00	0.0	0.600		o	225	Pipe/Conduit	
42.004	19.123	0.430	44.5	0.036	0.00	0.0	0.600		o	225	Pipe/Conduit	
42.005	14.089	0.100	140.9	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
41.004	4.349	0.200	21.7	0.030	0.00	0.0	0.600		o	225	Pipe/Conduit	
41.005	25.005	0.500	50.0	0.008	0.00	0.0	0.600		o	225	Pipe/Conduit	
41.006	39.040	0.600	65.1	0.050	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)
41.000	50.00	6.45	45.450	0.086	0.0	0.0	0.0	0.40	926.0	11.6
41.001	50.00	7.48	45.000	0.086	0.0	0.0	0.0	0.34	758.3	11.6
41.002	50.00	7.97	44.750	0.086	0.0	0.0	0.0	0.66	26.2	11.6
41.003	50.00	8.34	44.700	0.086	0.0	0.0	0.0	1.16	46.0	11.6
42.000	50.00	6.87	47.000	0.098	0.0	0.0	0.0	0.34	1805.3	13.3
42.001	50.00	7.18	46.000	0.119	0.0	0.0	0.0	1.82	72.3	16.1
42.002	50.00	7.52	45.350	0.173	0.0	0.0	0.0	1.13	44.9	23.4
42.003	50.00	7.73	45.180	0.213	0.0	0.0	0.0	1.26	50.0	28.8
42.004	50.00	7.89	45.030	0.249	0.0	0.0	0.0	1.97	78.2	33.7
42.005	50.00	8.11	44.600	0.249	0.0	0.0	0.0	1.10	43.7	33.7
41.004	50.00	8.36	44.500	0.365	0.0	0.0	0.0	2.82	112.1	49.4
41.005	50.00	8.59	44.300	0.373	0.0	0.0	0.0	1.85	73.7	50.5
41.006	50.00	8.99	43.800	0.423	0.0	0.0	0.0	1.62	64.6	57.3

Network Design Table for southern- 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
43.000	14.928	0.425	35.1	0.018	5.00	0.0	0.600		o	150	Pipe/Conduit	
43.001	17.646	0.220	80.2	0.057	0.00	0.0	0.600		o	225	Pipe/Conduit	
43.002	11.126	0.580	19.2	0.052	0.00	0.0	0.600		o	225	Pipe/Conduit	
43.003	55.152	1.370	40.3	0.074	0.00	0.0	0.600		o	225	Pipe/Conduit	
43.004	25.620	0.430	59.6	0.038	0.00	0.0		0.075	o	225	Pipe/Conduit	
41.007	24.451	0.050	489.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
44.000	51.341	0.350	146.7	0.060	5.00	0.0	0.600		o	225	Pipe/Conduit	
44.001	14.072	0.230	61.2	0.108	0.00	0.0	0.600		o	300	Pipe/Conduit	
44.002	26.112	0.470	55.6	0.043	0.00	0.0	0.600		o	300	Pipe/Conduit	
45.000	22.912	0.500	45.8	0.021	5.00	0.0	0.600		o	150	Pipe/Conduit	
44.003	43.755	1.570	27.9	0.062	0.00	0.0	0.600		o	300	Pipe/Conduit	
44.004	17.485	0.530	33.0	0.049	0.00	0.0	0.600		o	300	Pipe/Conduit	
46.000	37.548	1.200	31.3	0.080	5.00	0.0	0.600		o	225	Pipe/Conduit	
44.005	5.553	0.200	27.8	0.025	0.00	0.0	0.600		oo	300	Double Pipe	
44.006	14.215	0.100	142.2	0.046	0.00	0.0	0.600		o	300	Pipe/Conduit	
44.007	28.628	0.230	124.5	0.025	0.00	0.0	0.600		o	300	Pipe/Conduit	
47.000	19.083	0.140	136.3	0.049	5.00	0.0	0.600		o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
43.000	50.00	5.15	46.300	0.018	0.0	0.0	0.0	1.70	30.1	2.4
43.001	50.00	5.35	45.800	0.075	0.0	0.0	0.0	1.46	58.1	10.2
43.002	50.00	5.41	45.580	0.127	0.0	0.0	0.0	3.00	119.3	17.2
43.003	50.00	5.85	45.000	0.201	0.0	0.0	0.0	2.07	82.2	27.2
43.004	50.00	7.54	43.630	0.239	0.0	0.0	0.0	0.25	10.1«	32.4
41.007	50.00	9.69	43.200	0.662	0.0	0.0	0.0	0.58	23.2«	89.6
44.000	50.00	5.79	47.000	0.060	0.0	0.0	0.0	1.08	42.8	8.1
44.001	50.00	5.91	46.500	0.168	0.0	0.0	0.0	2.01	142.3	22.7
44.002	50.00	6.12	46.270	0.211	0.0	0.0	0.0	2.11	149.4	28.6
45.000	50.00	5.26	46.450	0.021	0.0	0.0	0.0	1.49	26.3	2.8
44.003	50.00	6.36	45.800	0.294	0.0	0.0	0.0	2.99	211.3	39.8
44.004	50.00	6.47	44.230	0.343	0.0	0.0	0.0	2.75	194.2	46.4
46.000	50.00	5.27	44.900	0.080	0.0	0.0	0.0	2.35	93.3	10.8
44.005	50.00	6.50	43.700	0.448	0.0	0.0	0.0	3.00	423.5	60.7
44.006	50.00	6.68	43.500	0.494	0.0	0.0	0.0	1.32	93.1	66.9
44.007	50.00	7.02	43.400	0.519	0.0	0.0	0.0	1.41	99.5	70.3
47.000	50.00	5.37	44.775	0.049	0.0	0.0	0.0	0.86	15.2	6.6

Network Design Table for southern- 1in 1 year

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
47.001	38.254	1.130	33.9	0.039	0.00	0.0		0.075	o	300	Pipe/Conduit	
47.002	14.396	0.050	287.9	0.009	0.00	0.0		0.075	o	300	Pipe/Conduit	
47.003	3.284	0.150	21.9	0.007	0.00	0.0		0.075	o	150	Pipe/Conduit	
44.008	7.262	0.070	103.7	0.000	0.00	0.0		0.075	o	300	Pipe/Conduit	
41.008	23.662	0.061	387.9	0.000	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)
47.001	50.00	6.93	44.560	0.088	0.0	0.0	0.0	0.41	28.8	11.9
47.002	50.00	8.65	43.420	0.097	0.0	0.0	0.0	0.14	9.9«	13.1
47.003	50.00	8.82	43.370	0.104	0.0	0.0	0.0	0.32	5.6«	14.1
44.008	50.00	9.34	43.170	0.623	0.0	0.0	0.0	0.23	16.5«	84.4
41.008	50.00	10.28	43.100	1.285	0.0	0.0	0.0	0.66	26.2«	174.0

Free Flowing Outfall Details for southern- 1in 1 year

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
41.008		43.900	43.039	0.000	0	0

Simulation Criteria for southern- 1in 1 year

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Storm Duration (mins)	30
Ratio R	0.400		

Online Controls for southern- 1in 1 year

Orifice Manhole: 160, DS/PN: 42.001, Volume (m³): 198.1

Diameter (m) 0.059 Discharge Coefficient 0.600 Invert Level (m) 46.000

Hydro-Brake® Optimum Manhole: 165, DS/PN: 41.004, Volume (m³): 2.6

Unit Reference	MD-SHE-0146-1000-1000-1000
Design Head (m)	1.000
Design Flow (l/s)	10.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	146
Invert Level (m)	44.500
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	10.0
Flush-Flo™	0.306	9.9
Kick-Flo®	0.673	8.3
Mean Flow over Head Range	-	8.6

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.2	1.200	10.9	3.000	16.8	7.000	25.2
0.200	9.6	1.400	11.7	3.500	18.1	7.500	26.1
0.300	9.9	1.600	12.5	4.000	19.3	8.000	26.9
0.400	9.8	1.800	13.2	4.500	20.4	8.500	27.7
0.500	9.6	2.000	13.9	5.000	21.5	9.000	28.5
0.600	9.1	2.200	14.5	5.500	22.5	9.500	29.2
0.800	9.0	2.400	15.1	6.000	23.4		
1.000	10.0	2.600	15.7	6.500	24.4		

Orifice Manhole: 172, DS/PN: 43.004, Volume (m³): 3.5

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 43.630

Orifice Manhole: 178, DS/PN: 44.003, Volume (m³): 3.9

Diameter (m) 0.284 Discharge Coefficient 0.600 Invert Level (m) 45.800

Orifice Manhole: 183, DS/PN: 44.007, Volume (m³): 3.1

Diameter (m) 0.231 Discharge Coefficient 0.600 Invert Level (m) 43.400

Orifice Manhole: 188, DS/PN: 44.008, Volume (m³): 3.0

Diameter (m) 0.238 Discharge Coefficient 0.600 Invert Level (m) 43.170

Complex Manhole: 189, DS/PN: 41.008, Volume (m^3): 2.4

Orifice

Diameter (m) 0.082 Discharge Coefficient 0.600 Invert Level (m) 43.100

Orifice

Diameter (m) 0.125 Discharge Coefficient 0.600 Invert Level (m) 43.332

Storage Structures for southern- 1in 1 year

Porous Car Park Pipe: 41.000

Manning's N	0.075	Width (m)	7.3
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	78.0
Max Percolation (l/s)	71.1	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	45.450		

Porous Car Park Pipe: 41.001

Manning's N	0.075	Width (m)	7.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	21.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	106.1
Max Percolation (l/s)	41.3	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	300
Invert Level (m)	45.000		

Porous Car Park Pipe: 42.000

Manning's N	0.075	Width (m)	22.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	38.5
Membrane Percolation (mm/hr)	1000	Slope (1:X)	85.5
Max Percolation (l/s)	235.0	Depression Storage (mm)	5
Safety Factor	2.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	1
Invert Level (m)	47.000		

Tank or Pond Manhole: 165, DS/PN: 41.004

Invert Level (m) 44.500

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	25.0	1.000	186.0

Complex Manhole: 172, DS/PN: 43.004

Cellular Storage

Invert Level (m)	43.630	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	120.0	250.0	0.400	120.0	275.3

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.4
Membrane Percolation (mm/hr)	1000	Length (m)	49.0
Max Percolation (l/s)	87.1	Slope (1:X)	35.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	44.030	Membrane Depth (mm)	0

Porous Car Park Manhole: 173, DS/PN: 41.007

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	20.0
Membrane Percolation (mm/hr)	1000	Length (m)	12.5
Max Percolation (l/s)	69.4	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	43.200	Membrane Depth (mm)	230

Complex Manhole: 183, DS/PN: 44.007

Cellular Storage

Invert Level (m)	43.302	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	50.0	60.0	0.400	50.0	72.4

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	10.8
Max Percolation (l/s)	18.0	Slope (1:X)	30.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	43.702	Membrane Depth (mm)	230

Complex Manhole: 187, DS/PN: 47.003

Cellular Storage

Invert Level (m)	43.370	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	180.0	180.0	0.400	180.0	201.5

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	52.0
Max Percolation (l/s)	79.4	Slope (1:X)	55.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	43.770	Membrane Depth (mm)	230

Complex Manhole: 188, DS/PN: 44.008

Cellular Storage

Invert Level (m)	43.170	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Cellular Storage

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	72.0	72.0	0.400	72.0	85.6

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	60.0
Max Percolation (l/s)	100.0	Slope (1:X)	253.2
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	43.570	Membrane Depth (mm)	230

Tank or Pond Manhole: 189, DS/PN: 41.008

Invert Level (m) 43.100

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	175.0	0.900	438.0

1 in 1 year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	15 minute 1 year Winter I+0%	51.500	50.510	-0.840	0.000	0.02
1.001	2	30 minute 1 year Winter I+0%	51.150	50.036	0.036	0.000	0.27
2.000	3	15 minute 1 year Winter I+0%	51.900	50.812	-0.938	0.000	0.02
1.002	4	30 minute 1 year Winter I+0%	51.450	50.022	0.162	0.000	0.68
1.003	5	30 minute 1 year Winter I+0%	51.550	49.805	0.020	0.000	0.78
1.004	6	30 minute 1 year Winter I+0%	51.600	49.726	0.051	0.000	0.89
1.005	7	30 minute 1 year Winter I+0%	51.450	49.655	0.025	0.000	0.88
1.006	8	30 minute 1 year Winter I+0%	51.350	49.580	0.015	0.000	0.83
3.000	9	120 minute 1 year Winter I+0%	50.600	49.507	0.107	0.000	0.14
1.007	10	120 minute 1 year Winter I+0%	50.450	49.503	-0.047	0.000	0.18
4.000	11	15 minute 1 year Winter I+0%	51.200	49.971	-0.029	0.000	0.91
4.001	12	15 minute 1 year Winter I+0%	51.100	49.837	-0.183	0.000	0.27
5.000	13	15 minute 1 year Winter I+0%	51.300	49.991	-0.184	0.000	0.07
4.002	14	15 minute 1 year Winter I+0%	51.200	49.796	-0.164	0.000	0.41
4.003	15	15 minute 1 year Winter I+0%	51.000	49.751	-0.159	0.000	0.45
4.004	16	15 minute 1 year Winter I+0%	51.000	49.699	-0.151	0.000	0.49
4.005	17	15 minute 1 year Winter I+0%	51.000	49.650	-0.150	0.000	0.50
4.006	18	15 minute 1 year Winter I+0%	51.000	49.598	-0.142	0.000	0.54
4.007	19	15 minute 1 year Winter I+0%	50.850	49.461	-0.169	0.000	0.38
6.000	20	15 minute 1 year Winter I+0%	50.325	49.604	-0.571	0.000	0.02
6.001	21	15 minute 1 year Winter I+0%	50.250	49.521	-0.079	0.000	0.46
1.008	22	120 minute 1 year Winter I+0%	50.000	49.310	0.085	0.000	0.28
7.000	23	240 minute 1 year Winter I+0%	50.100	49.195	0.086	0.000	0.12
7.001	24	240 minute 1 year Winter I+0%	49.900	49.194	0.153	0.000	0.10
8.000	25	240 minute 1 year Winter I+0%	50.200	49.197	0.035	0.000	0.12
8.001	26	240 minute 1 year Winter I+0%	50.100	49.196	0.184	0.000	0.16

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.062	9.252	20.9	OK
1.001	2			5.381	21.051	15.8	SURCHARGED
2.000	3			0.065	10.202	22.7	OK
1.002	4			5.374	41.828	38.8	SURCHARGED
1.003	5			1.728	51.837	45.8	SURCHARGED
1.004	6			2.442	57.013	47.1	SURCHARGED
1.005	7			1.185	60.690	48.8	SURCHARGED
1.006	8			1.579	63.854	49.1	SURCHARGED
3.000	9			0.285	6.382	1.9	SURCHARGED
1.007	10			4.232	116.539	34.2	OK
4.000	11			0.131	5.998	12.5	OK
4.001	12			0.328	7.425	14.9	OK
5.000	13			0.041	1.826	3.9	OK
4.002	14			0.530	11.859	22.8	OK
4.003	15			0.443	13.511	25.6	OK
4.004	16			0.540	14.902	27.5	OK
4.005	17			0.466	15.771	28.9	OK
4.006	18			0.569	18.032	31.5	OK
4.007	19			0.601	19.249	32.0	OK
6.000	20			0.055	4.940	10.6	OK
6.001	21			2.545	6.765	12.1	OK
1.008	22			115.738	115.201	13.3	SURCHARGED
7.000	23			0.261	10.202	1.6	SURCHARGED
7.001	24			0.497	10.200	1.4	SURCHARGED
8.000	25			0.204	9.979	1.7	SURCHARGED
8.001	26			0.743	14.637	2.2	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	240 minute 1 year Winter I+0%	49.950	49.199	0.035	0.000	0.13
9.001	28	240 minute 1 year Winter I+0%	49.900	49.197	0.146	0.000	0.21
9.002	29	240 minute 1 year Winter I+0%	49.850	49.195	0.135	0.000	0.09
8.002	30	240 minute 1 year Winter I+0%	49.950	49.194	0.219	0.000	0.17
1.009	31	240 minute 1 year Winter I+0%	49.700	49.192	0.342	0.000	0.44
1.010	32	360 minute 1 year Winter I+0%	49.300	48.163	-0.087	0.000	0.37
10.000	33	15 minute 1 year Winter I+0%	50.900	49.650	-0.050	0.000	0.77
10.001	34	15 minute 1 year Winter I+0%	50.800	49.387	-0.213	0.000	0.18
10.002	35	15 minute 1 year Winter I+0%	50.300	48.959	-0.141	0.000	0.53
10.003	36	15 minute 1 year Winter I+0%	50.550	48.805	-0.135	0.000	0.58
10.004	37	15 minute 1 year Winter I+0%	50.350	48.732	-0.108	0.000	0.37
10.005	38	15 minute 1 year Winter I+0%	50.250	48.695	-0.035	0.000	0.49
11.000	39	15 minute 1 year Winter I+0%	51.150	49.908	-0.092	0.000	0.31
10.006	40	15 minute 1 year Winter I+0%	50.550	48.455	-0.205	0.000	0.22
10.007	41	15 minute 1 year Winter I+0%	49.300	47.882	-0.218	0.000	0.17
10.008	42	15 minute 1 year Winter I+0%	48.350	47.002	-0.148	0.000	0.51
10.009	43	15 minute 1 year Winter I+0%	48.800	46.919	-0.101	0.000	0.75
10.010	44	15 minute 1 year Winter I+0%	49.000	46.864	-0.106	0.000	0.65
10.011	45	15 minute 1 year Winter I+0%	49.350	46.829	-0.081	0.000	0.75
10.012	46	15 minute 1 year Winter I+0%	48.900	46.783	-0.067	0.000	0.91
12.000	47	15 minute 1 year Winter I+0%	47.850	46.701	-0.099	0.000	0.25
12.001	48	60 minute 1 year Winter I+0%	47.500	46.649	-0.001	0.000	0.20
1.011	49	60 minute 1 year Winter I+0%	47.100	46.644	-0.131	0.000	0.13
13.000	50	15 minute 1 year Winter I+0%	48.750	47.443	-0.107	0.000	0.18
13.001	51	15 minute 1 year Winter I+0%	46.850	45.631	-0.019	0.000	1.00
1.012	52	60 minute 1 year Winter I+0%	46.500	45.298	-0.279	0.000	0.15
1.013	53	60 minute 1 year Winter I+0%	44.600	43.263	-0.289	0.000	0.12
14.000	54	15 minute 1 year Winter I+0%	46.000	44.672	-0.078	0.000	0.46
14.001	55	15 minute 1 year Winter I+0%	45.000	43.221	-0.179	0.000	0.33
15.000	56	15 minute 1 year Winter I+0%	46.950	45.425	-0.125	0.000	0.07
15.001	57	15 minute 1 year Winter I+0%	46.300	43.834	-0.191	0.000	0.05
14.002	58	15 minute 1 year Winter I+0%	45.500	43.106	-0.194	0.000	0.27
14.003	59	15 minute 1 year Winter I+0%	44.200	42.505	-0.195	0.000	0.26
14.004	60	15 minute 1 year Winter I+0%	43.100	41.758	-0.292	0.000	0.27
14.005	61	15 minute 1 year Winter I+0%	43.700	41.574	-0.326	0.000	0.17
16.000	62	15 minute 1 year Winter I+0%	46.500	45.179	-0.121	0.000	0.08
16.001	63	15 minute 1 year Winter I+0%	45.500	44.198	-0.102	0.000	0.22
17.000	64	15 minute 1 year Winter I+0%	46.500	45.189	-0.111	0.000	0.15
17.001	65	15 minute 1 year Winter I+0%	44.650	43.299	-0.101	0.000	0.23
16.002	66	15 minute 1 year Winter I+0%	44.300	43.019	-0.081	0.000	0.43
1.014	67	960 minute 1 year Winter I+0%	41.800	41.420	-0.280	0.000	0.12
18.000	68	15 minute 1 year Winter I+0%	50.100	48.995	-0.955	0.000	0.03
18.001	69	15 minute 1 year Winter I+0%	49.700	48.636	-0.014	0.000	1.04
18.002	70	30 minute 1 year Winter I+0%	49.800	48.443	-0.067	0.000	0.94
19.000	71	15 minute 1 year Winter I+0%	50.100	48.826	-0.224	0.000	0.14
20.000	72	15 minute 1 year Winter I+0%	50.100	48.821	-0.154	0.000	0.21
20.001	73	15 minute 1 year Winter I+0%	50.000	48.697	-0.178	0.000	0.10
19.001	74	15 minute 1 year Winter I+0%	50.000	48.315	-0.135	0.000	0.45
19.002	75	15 minute 1 year Winter I+0%	50.050	48.289	-0.061	0.000	0.98
19.003	76	15 minute 1 year Winter I+0%	50.050	48.193	-0.097	0.000	0.79
21.000	77	15 minute 1 year Winter I+0%	50.050	48.780	-0.070	0.000	0.54
21.001	78	15 minute 1 year Winter I+0%	50.050	48.711	-0.039	0.000	0.89
21.002	79	15 minute 1 year Winter I+0%	50.000	48.549	-0.081	0.000	0.44

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			0.203	10.422	1.7	SURCHARGED
9.001	28			0.604	18.185	2.7	SURCHARGED
9.002	29			0.556	19.960	2.8	SURCHARGED
8.002	30			1.434	34.597	4.9	SURCHARGED
1.009	31			23.677	240.906	11.8	SURCHARGED
1.010	32			0.078	278.537	11.8	OK
10.000	33			0.108	5.216	11.1	OK
10.001	34			0.093	11.736	22.8	OK
10.002	35			0.353	17.213	31.6	OK
10.003	36			1.033	21.647	38.5	OK
10.004	37			0.964	27.821	45.5	OK
10.005	38			3.226	30.350	48.3	OK
11.000	39			0.060	5.564	11.9	OK
10.006	40			0.718	43.736	64.5	OK
10.007	41			0.195	49.560	72.8	OK
10.008	42			0.362	53.298	78.2	OK
10.009	43			1.479	55.122	80.2	OK
10.010	44			1.345	55.121	79.8	OK
10.011	45			1.425	58.939	83.3	OK
10.012	46			1.951	59.425	82.4	OK
12.000	47			0.052	3.217	6.7	OK
12.001	48			0.511	8.793	5.4	OK
1.011	49	0.0	0.000	53.898	158.924	57.3	OK
13.000	50			0.044	3.391	7.2	OK
13.001	51			0.161	6.694	12.9	OK
1.012	52			0.143	174.998	61.4	OK
1.013	53			0.132	174.824	61.4	OK
14.000	54			0.076	7.911	16.9	OK
14.001	55			0.135	12.867	25.7	OK
15.000	56			0.023	1.826	3.9	OK
15.001	57			0.033	3.217	6.4	OK
14.002	58			0.234	18.692	37.0	OK
14.003	59			0.157	23.039	45.0	OK
14.004	60			0.309	26.865	51.5	OK
14.005	61			0.565	26.865	51.1	OK
16.000	62			0.027	1.478	3.2	OK
16.001	63			0.052	4.608	8.8	OK
17.000	64			0.038	2.869	6.1	OK
17.001	65			0.055	3.391	7.0	OK
16.002	66			0.087	9.650	18.8	OK
1.014	67			3.198	791.432	29.7	OK
18.000	68			0.101	13.342	28.1	OK
18.001	69			8.072	20.324	24.3	OK
18.002	70			2.453	37.001	32.5	OK
19.000	71			0.126	13.909	28.9	OK
20.000	72			0.075	3.478	7.3	OK
20.001	73			0.101	3.477	7.4	OK
19.001	74			0.928	18.517	36.8	OK
19.002	75			0.677	22.864	43.8	OK
19.003	76			1.399	22.865	43.5	OK
21.000	77			0.085	3.391	7.1	OK
21.001	78			0.206	6.346	12.5	OK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			0.118	7.303	14.1	OK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	15 minute 1 year Winter I+0%	49.950	48.168	-0.092	0.000	0.79
18.004	81	15 minute 1 year Winter I+0%	49.450	48.027	-0.073	0.000	0.88
22.000	82	15 minute 1 year Winter I+0%	49.800	49.063	-0.587	0.000	0.03
23.000	83	15 minute 1 year Winter I+0%	49.800	49.076	-0.574	0.000	0.04
22.001	84	15 minute 1 year Winter I+0%	49.600	48.781	-0.669	0.000	0.04
22.002	85	15 minute 1 year Winter I+0%	49.350	48.523	-0.227	0.000	0.14
18.005	86	30 minute 1 year Winter I+0%	49.300	47.942	-0.173	0.000	0.56
18.006	87	30 minute 1 year Winter I+0%	49.050	47.739	-0.066	0.000	0.73
24.000	88	15 minute 1 year Winter I+0%	48.800	48.073	-0.727	0.000	0.03
24.001	89	30 minute 1 year Winter I+0%	48.950	47.704	-0.046	0.000	0.50
18.007	90	30 minute 1 year Winter I+0%	49.000	47.685	0.000	0.000	1.05
18.008	91	30 minute 1 year Winter I+0%	48.800	47.391	-0.209	0.000	0.41
18.009	92	30 minute 1 year Winter I+0%	48.400	46.913	-0.212	0.000	0.39
18.010	93	30 minute 1 year Winter I+0%	47.800	46.470	-0.130	0.000	0.84
25.000	94	15 minute 1 year Winter I+0%	49.500	48.271	-0.029	0.000	0.99
26.000	95	15 minute 1 year Winter I+0%	49.500	48.164	-0.131	0.000	0.35
26.001	96	15 minute 1 year Winter I+0%	49.400	48.033	-0.112	0.000	0.50
25.001	97	15 minute 1 year Winter I+0%	49.150	47.898	-0.202	0.000	0.23
25.002	98	15 minute 1 year Winter I+0%	48.700	47.319	-0.181	0.000	0.33
18.011	99	30 minute 1 year Winter I+0%	47.500	46.266	-0.264	0.000	0.35
18.012	100	30 minute 1 year Winter I+0%	47.200	45.977	0.002	0.000	1.41
27.000	101	15 minute 1 year Winter I+0%	48.950	47.688	-0.062	0.000	0.63
27.001	102	15 minute 1 year Winter I+0%	48.450	47.380	-0.145	0.000	0.27
27.002	103	15 minute 1 year Winter I+0%	47.450	46.384	-0.141	0.000	0.30
18.013	104	30 minute 1 year Winter I+0%	47.200	45.868	-0.142	0.000	0.88
28.000	105	15 minute 1 year Winter I+0%	49.550	48.264	-0.086	0.000	0.36
29.000	106	15 minute 1 year Winter I+0%	49.450	48.191	-0.059	0.000	0.66
28.001	107	60 minute 1 year Winter I+0%	49.550	48.039	-0.047	0.000	0.37
28.002	108	60 minute 1 year Winter I+0%	49.650	48.023	0.057	0.000	0.50
28.003	109	60 minute 1 year Winter I+0%	49.300	48.008	0.096	0.000	0.31
30.000	110	15 minute 1 year Winter I+0%	49.500	48.247	-0.053	0.000	0.73
30.001	111	15 minute 1 year Winter I+0%	49.350	48.026	-0.087	0.000	0.37
28.004	112	30 minute 1 year Winter I+0%	49.300	47.743	-0.069	0.000	0.82
28.005	113	120 minute 1 year Winter I+0%	48.700	47.536	-0.176	0.000	0.11
18.014	114	120 minute 1 year Winter I+0%	46.600	45.696	-0.154	0.000	0.19
31.000	115	15 minute 1 year Winter I+0%	48.200	47.406	-0.793	0.000	0.01
31.001	116	30 minute 1 year Winter I+0%	47.900	47.224	-0.675	0.000	0.01
31.002	117	60 minute 1 year Winter I+0%	47.900	47.111	-0.042	0.000	1.00
31.003	118	30 minute 1 year Winter I+0%	48.100	47.021	-0.059	0.000	0.22
32.000	119	15 minute 1 year Winter I+0%	48.700	47.299	-0.061	0.000	0.83
32.001	120	15 minute 1 year Winter I+0%	48.250	47.094	0.000	0.000	1.02
31.004	121	15 minute 1 year Winter I+0%	48.200	47.014	0.004	0.000	1.01
31.005	122	30 minute 1 year Winter I+0%	48.000	46.908	0.038	0.000	0.98
33.000	123	15 minute 1 year Winter I+0%	47.400	46.831	-0.194	0.000	0.05
31.006	124	30 minute 1 year Winter I+0%	47.400	46.774	0.049	0.000	1.17
31.007	125	30 minute 1 year Winter I+0%	47.300	46.704	0.030	0.000	1.20
31.008	126	30 minute 1 year Winter I+0%	46.660	46.513	-0.147	0.000	0.21
31.009	127	30 minute 1 year Winter I+0%	46.560	46.355	-0.120	0.000	0.45
18.015	128	240 minute 1 year Winter I+0%	45.800	45.302	-0.198	0.000	0.05
1.015	129	960 minute 1 year Winter I+0%	41.800	41.410	-0.090	0.000	0.04

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			1.343	62.433	89.8	OK
18.004	81			1.383	62.812	89.5	OK
22.000	82			0.065	5.500	11.4	OK
23.000	83			0.080	3.504	6.7	OK
22.001	84			4.655	13.726	21.4	OK
22.002	85			3.609	13.726	21.2	OK
18.005	86			2.054	106.787	102.4	OK
18.006	87			1.615	108.219	100.6	OK
24.000	88			0.077	3.166	6.7	OK
24.001	89			0.937	5.384	6.5	OK
18.007	90			1.478	113.590	106.1	OK
18.008	91			0.971	121.174	110.1	OK
18.009	92			0.323	124.734	111.6	OK
18.010	93			0.645	128.620	112.9	OK
25.000	94			0.131	6.955	14.8	OK
26.000	95			0.100	5.564	11.7	OK
26.001	96			0.317	8.433	16.4	OK
25.001	97			0.239	21.125	41.2	OK
25.002	98			0.167	28.341	53.9	OK
18.011	99			1.441	173.124	148.9	OK
18.012	100			1.597	177.656	153.0	SURCHARGED
27.000	101			0.094	4.608	9.8	OK
27.001	102			0.087	11.475	22.2	OK
27.002	103			0.109	15.561	29.5	OK
18.013	104			2.691	200.648	173.1	OK
28.000	105			0.066	2.782	5.8	OK
29.000	106			0.098	4.347	9.1	OK
28.001	107			0.363	18.329	11.7	OK
28.002	108			1.238	25.518	14.8	SURCHARGED
28.003	109			10.511	24.640	8.7	SURCHARGED
30.000	110			0.104	4.782	10.0	OK
30.001	111			0.112	5.303	11.0	OK
28.004	112			6.336	22.500	15.2	OK
28.005	113			16.982	26.646	11.0	OK
18.014	114			194.802	299.635	45.4	OK
31.000	115			0.027	6.460	14.7	OK
31.001	116			5.096	10.474	7.0	OK
31.002	117			4.439	14.002	5.2	OK
31.003	118			0.527	10.875	6.7	OK
32.000	119			0.180	11.154	33.1	OK
32.001	120			0.880	12.196	31.6	OK
31.004	121			1.300	23.507	32.7	SURCHARGED
31.005	122			1.256	35.612	31.7	SURCHARGED
33.000	123			0.030	1.217	2.6	OK
31.006	124			1.788	37.974	32.8	SURCHARGED
31.007	125			0.715	38.930	33.5	SURCHARGED
31.008	126			0.614	40.891	34.8	FLOOD RISK*
31.009	127			0.386	40.744	34.8	FLOOD RISK*
18.015	128			165.335	459.396	40.3	OK
1.015	129			700.068	1497.791	25.0	OK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 1 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 1 year Winter I+0%	49.600	48.771	-0.529	0.000	0.02
34.001	131	15 minute 1 year Winter I+0%	48.800	48.130	-0.370	0.000	0.03
34.002	132	15 minute 1 year Winter I+0%	47.950	47.384	-0.376	0.000	0.29
34.003	133	120 minute 1 year Winter I+0%	47.950	47.351	0.001	0.000	0.32
35.000	134	15 minute 1 year Winter I+0%	49.850	48.506	-0.149	0.000	0.24
34.004	135	15 minute 1 year Winter I+0%	47.800	47.157	-0.143	0.000	0.52
34.005	136	15 minute 1 year Winter I+0%	47.700	47.124	-0.201	0.000	0.44
34.006	137	120 minute 1 year Winter I+0%	47.400	47.017	-0.183	0.000	0.02
36.000	138	15 minute 1 year Winter I+0%	49.900	49.030	-0.570	0.000	0.01
36.001	139	30 minute 1 year Winter I+0%	49.350	48.759	-0.291	0.000	0.01
36.002	140	30 minute 1 year Winter I+0%	48.000	47.361	-0.189	0.000	0.11
37.000	141	15 minute 1 year Winter I+0%	47.400	46.147	-0.203	0.000	0.23
36.003	142	15 minute 1 year Winter I+0%	46.700	46.007	-0.233	0.000	0.11
36.004	143	15 minute 1 year Winter I+0%	46.650	45.385	-0.195	0.000	0.27
38.000	144	15 minute 1 year Winter I+0%	47.600	45.646	-0.179	0.000	0.09
36.005	145	15 minute 1 year Winter I+0%	46.800	45.211	-0.219	0.000	0.16
34.007	146	15 minute 1 year Winter I+0%	45.800	43.903	0.003	0.000	1.13
34.008	147	120 minute 1 year Winter I+0%	44.300	43.723	-0.127	0.000	0.06
39.000	148	15 minute 1 year Winter I+0%	44.200	42.890	-0.110	0.000	0.16
39.001	149	15 minute 1 year Winter I+0%	43.800	42.509	-0.091	0.000	0.32
39.002	150	15 minute 1 year Winter I+0%	42.800	41.518	-0.082	0.000	0.41
34.009	151	240 minute 1 year Winter I+0%	42.300	40.660	-0.040	0.000	0.33
40.000	152	15 minute 1 year Winter I+0%	42.600	41.466	-0.084	0.000	0.39
34.010	153	240 minute 1 year Winter I+0%	40.800	40.634	0.109	0.000	0.07
34.011	154	240 minute 1 year Winter I+0%	39.000	38.744	-0.181	0.000	0.08

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.041	4.989	11.2	OK
34.001	131			1.346	9.880	19.3	OK
34.002	132			1.999	15.821	26.7	OK
34.003	133			24.210	32.523	3.8	SURCHARGED
35.000	134			0.080	9.650	20.2	OK
34.004	135			0.491	24.760	31.2	OK
34.005	136			0.547	24.450	30.8	OK
34.006	137			28.686	60.804	7.7	OK
36.000	138			0.028	5.138	12.8	OK
36.001	139			3.819	6.824	4.2	OK
36.002	140			0.364	7.677	4.7	OK
37.000	141			0.104	8.867	18.9	OK
36.003	142			0.150	15.814	22.7	OK
36.004	143			0.127	16.768	24.6	OK
38.000	144			0.046	2.869	6.1	OK
36.005	145			0.175	25.893	41.8	OK
34.007	146			0.780	38.732	44.4	SURCHARGED
34.008	147			26.276	109.981	18.9	OK
39.000	148			0.040	2.434	5.2	OK
39.001	149			0.068	6.955	13.3	OK
39.002	150			0.076	9.128	17.2	OK
34.009	151			0.446	181.624	19.5	OK
40.000	152			0.068	5.999	12.7	OK
34.010	153			66.888	183.230	13.1	FLOOD RISK
34.011	154			0.057	183.149	13.1	OK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 1 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 1 year Winter I+0%	46.800	45.517	-0.983	0.000	0.02
41.001	156	15 minute 1 year Winter I+0%	46.350	45.074	-0.976	0.000	0.02
41.002	157	60 minute 1 year Winter I+0%	46.100	44.914	-0.061	0.000	0.34
41.003	158	60 minute 1 year Winter I+0%	46.250	44.911	-0.014	0.000	0.17
42.000	159	15 minute 1 year Winter I+0%	47.800	47.038	-0.761	0.000	0.01
42.001	160	30 minute 1 year Winter I+0%	47.400	46.679	0.454	0.000	0.09
42.002	161	30 minute 1 year Winter I+0%	46.800	45.435	-0.140	0.000	0.30
42.003	162	15 minute 1 year Winter I+0%	46.500	45.281	-0.124	0.000	0.41
42.004	163	15 minute 1 year Winter I+0%	46.200	45.120	-0.135	0.000	0.34
42.005	164	60 minute 1 year Winter I+0%	45.800	44.920	0.095	0.000	0.45
41.004	165	60 minute 1 year Winter I+0%	45.500	44.907	0.182	0.000	0.16
41.005	166	30 minute 1 year Winter I+0%	45.500	44.360	-0.165	0.000	0.16
41.006	167	15 minute 1 year Winter I+0%	45.000	43.882	-0.143	0.000	0.28
43.000	168	15 minute 1 year Winter I+0%	47.650	46.335	-0.115	0.000	0.12
43.001	169	15 minute 1 year Winter I+0%	47.200	45.875	-0.150	0.000	0.24
43.002	170	15 minute 1 year Winter I+0%	46.950	45.649	-0.156	0.000	0.20
43.003	171	15 minute 1 year Winter I+0%	46.600	45.100	-0.125	0.000	0.41
43.004	172	240 minute 1 year Winter I+0%	44.850	43.909	0.054	0.000	0.26
41.007	173	240 minute 1 year Winter I+0%	44.200	43.496	0.071	0.000	0.60
44.000	174	15 minute 1 year Winter I+0%	48.600	47.080	-0.145	0.000	0.27
44.001	175	15 minute 1 year Winter I+0%	47.850	46.599	-0.201	0.000	0.24
44.002	176	15 minute 1 year Winter I+0%	47.700	46.374	-0.196	0.000	0.26
45.000	177	15 minute 1 year Winter I+0%	47.800	46.490	-0.110	0.000	0.16
44.003	178	15 minute 1 year Winter I+0%	47.350	46.075	-0.025	0.000	0.24
44.004	179	15 minute 1 year Winter I+0%	45.950	44.349	-0.181	0.000	0.33
46.000	180	15 minute 1 year Winter I+0%	46.150	44.962	-0.163	0.000	0.17

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 1 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.070	7.053	15.8	OK
41.001	156			1.623	7.056	15.1	OK
41.002	157			1.792	12.189	7.9	OK
41.003	158			0.839	12.189	7.1	OK
42.000	159			0.038	7.471	16.8	OK
42.001	160			6.198	12.633	5.9	SURCHARGED
42.002	161			0.120	18.844	12.5	OK
42.003	162			0.196	17.467	18.2	OK
42.004	163			0.158	20.597	23.7	OK
42.005	164			0.693	35.457	17.3	SURCHARGED
41.004	165			20.907	50.860	9.9	SURCHARGED
41.005	166			0.068	28.289	10.8	OK
41.006	167			0.113	32.743	17.0	OK
43.000	168			0.034	1.565	3.3	OK
43.001	169			0.079	6.520	12.3	OK
43.002	170			0.107	11.041	20.4	OK
43.003	171			0.120	17.475	32.1	OK
43.004	172			32.344	45.606	2.6	SURCHARGED
41.007	173			23.381	132.924	12.9	SURCHARGED
44.000	174			0.085	5.216	11.2	OK
44.001	175			0.106	14.605	28.0	OK
44.002	176			0.159	18.344	34.7	OK
45.000	177			0.039	1.826	3.9	OK
44.003	178			0.809	25.559	48.1	OK
44.004	179			0.166	29.819	55.5	OK
46.000	180			0.065	6.955	14.7	OK

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 1 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	30 minute 1 year Winter I+0%	45.800	43.858	-0.142	0.000	0.28
44.006	182	30 minute 1 year Winter I+0%	45.750	43.841	0.041	0.000	0.85
44.007	183	30 minute 1 year Winter I+0%	45.300	43.744	0.044	0.000	0.59
47.000	184	15 minute 1 year Winter I+0%	45.800	44.863	-0.062	0.000	0.63
47.001	185	15 minute 1 year Winter I+0%	45.300	44.715	-0.145	0.000	0.51
47.002	186	15 minute 1 year Winter I+0%	44.200	43.778	0.058	0.000	1.56
47.003	187	360 minute 1 year Winter I+0%	44.100	43.487	-0.033	0.000	0.34
44.008	188	360 minute 1 year Winter I+0%	44.100	43.503	0.033	0.000	1.03
41.008	189	360 minute 1 year Winter I+0%	44.000	43.471	0.146	0.000	0.66

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			0.420	51.538	62.0	OK
44.006	182			1.042	56.690	65.9	SURCHARGED
44.007	183			22.401	46.405	53.2	SURCHARGED
47.000	184			0.094	4.260	9.0	OK
47.001	185			0.228	7.650	14.6	OK
47.002	186			0.848	8.432	15.4	SURCHARGED
47.003	187			20.397	20.745	1.9	OK
44.008	188			24.532	131.391	16.7	SURCHARGED
41.008	189			83.444	272.914	15.8	SURCHARGED

1 in 2 year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	15 minute 2 year Winter I+0%	51.500	50.519	-0.831	0.000	0.02
1.001	2	30 minute 2 year Winter I+0%	51.150	50.194	0.194	0.000	0.34
2.000	3	15 minute 2 year Winter I+0%	51.900	50.822	-0.928	0.000	0.02
1.002	4	30 minute 2 year Winter I+0%	51.450	50.177	0.317	0.000	0.72
1.003	5	30 minute 2 year Winter I+0%	51.550	49.932	0.147	0.000	0.83
1.004	6	30 minute 2 year Winter I+0%	51.600	49.856	0.181	0.000	0.98
1.005	7	30 minute 2 year Winter I+0%	51.450	49.787	0.157	0.000	1.00
1.006	8	30 minute 2 year Winter I+0%	51.350	49.713	0.148	0.000	0.96
3.000	9	30 minute 2 year Winter I+0%	50.600	49.581	0.181	0.000	0.42
1.007	10	30 minute 2 year Winter I+0%	50.450	49.570	0.020	0.000	0.34
4.000	11	15 minute 2 year Winter I+0%	51.200	50.059	0.059	0.000	1.12
4.001	12	15 minute 2 year Winter I+0%	51.100	49.854	-0.166	0.000	0.33
5.000	13	15 minute 2 year Winter I+0%	51.300	49.997	-0.178	0.000	0.10
4.002	14	15 minute 2 year Winter I+0%	51.200	49.816	-0.144	0.000	0.52
4.003	15	15 minute 2 year Winter I+0%	51.000	49.772	-0.138	0.000	0.56
4.004	16	15 minute 2 year Winter I+0%	51.000	49.721	-0.129	0.000	0.61
4.005	17	15 minute 2 year Winter I+0%	51.000	49.673	-0.127	0.000	0.62
4.006	18	15 minute 2 year Winter I+0%	51.000	49.623	-0.117	0.000	0.68
4.007	19	15 minute 2 year Winter I+0%	50.850	49.480	-0.150	0.000	0.49
6.000	20	15 minute 2 year Winter I+0%	50.325	49.612	-0.563	0.000	0.03
6.001	21	15 minute 2 year Winter I+0%	50.250	49.534	-0.066	0.000	0.59
1.008	22	240 minute 2 year Winter I+0%	50.000	49.389	0.164	0.000	0.29
7.000	23	240 minute 2 year Winter I+0%	50.100	49.283	0.174	0.000	0.15
7.001	24	240 minute 2 year Winter I+0%	49.900	49.282	0.241	0.000	0.13
8.000	25	240 minute 2 year Winter I+0%	50.200	49.286	0.124	0.000	0.14
8.001	26	240 minute 2 year Winter I+0%	50.100	49.284	0.272	0.000	0.20

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.073	12.028	26.8	OK
1.001	2			11.106	26.671	19.8	SURCHARGED
2.000	3			0.076	13.325	29.4	OK
1.002	4			5.900	53.063	40.7	SURCHARGED
1.003	5			1.972	65.671	48.6	SURCHARGED
1.004	6			2.755	72.158	51.9	SURCHARGED
1.005	7			1.375	76.675	55.2	SURCHARGED
1.006	8			1.805	80.300	57.1	SURCHARGED
3.000	9			0.369	4.870	5.6	SURCHARGED
1.007	10			4.402	88.767	63.4	SURCHARGED
4.000	11			0.231	7.694	15.4	SURCHARGED
4.001	12			0.387	9.539	18.6	OK
5.000	13			0.047	2.342	5.0	OK
4.002	14			0.661	15.225	28.5	OK
4.003	15			0.540	17.344	31.9	OK
4.004	16			0.658	19.128	34.4	OK
4.005	17			0.568	20.242	36.1	OK
4.006	18			0.697	23.142	39.7	OK
4.007	19			0.779	24.703	40.4	OK
6.000	20			0.065	6.488	13.6	OK
6.001	21			3.061	8.829	15.8	OK
1.008	22			151.634	224.443	13.4	SURCHARGED
7.000	23			0.361	12.287	1.9	SURCHARGED
7.001	24			0.597	12.207	1.8	SURCHARGED
8.000	25			0.304	12.014	1.9	SURCHARGED
8.001	26			0.842	17.459	2.7	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	240 minute 2 year Winter I+0%	49.950	49.287	0.123	0.000	0.15
9.001	28	240 minute 2 year Winter I+0%	49.900	49.285	0.234	0.000	0.26
9.002	29	240 minute 2 year Winter I+0%	49.850	49.283	0.223	0.000	0.11
8.002	30	240 minute 2 year Winter I+0%	49.950	49.282	0.307	0.000	0.21
1.009	31	240 minute 2 year Winter I+0%	49.700	49.280	0.430	0.000	0.44
1.010	32	240 minute 2 year Summer I+0%	49.300	48.163	-0.087	0.000	0.37
10.000	33	15 minute 2 year Winter I+0%	50.900	49.672	-0.028	0.000	0.98
10.001	34	15 minute 2 year Winter I+0%	50.800	49.399	-0.201	0.000	0.23
10.002	35	15 minute 2 year Winter I+0%	50.300	48.986	-0.114	0.000	0.68
10.003	36	15 minute 2 year Winter I+0%	50.550	48.856	-0.084	0.000	0.73
10.004	37	15 minute 2 year Winter I+0%	50.350	48.808	-0.032	0.000	0.45
10.005	38	15 minute 2 year Winter I+0%	50.250	48.748	0.018	0.000	0.60
11.000	39	15 minute 2 year Winter I+0%	51.150	49.916	-0.084	0.000	0.40
10.006	40	15 minute 2 year Winter I+0%	50.550	48.468	-0.192	0.000	0.28
10.007	41	15 minute 2 year Winter I+0%	49.300	47.894	-0.206	0.000	0.22
10.008	42	15 minute 2 year Winter I+0%	48.350	47.182	0.032	0.000	0.65
10.009	43	15 minute 2 year Winter I+0%	48.800	47.079	0.059	0.000	0.93
10.010	44	15 minute 2 year Winter I+0%	49.000	47.007	0.037	0.000	0.78
10.011	45	15 minute 2 year Winter I+0%	49.350	46.916	0.006	0.000	0.88
10.012	46	15 minute 2 year Winter I+0%	48.900	46.843	-0.007	0.000	1.01
12.000	47	15 minute 2 year Winter I+0%	47.850	46.709	-0.091	0.000	0.32
12.001	48	30 minute 2 year Winter I+0%	47.500	46.683	0.033	0.000	0.40
1.011	49	30 minute 2 year Winter I+0%	47.100	46.679	-0.096	0.000	0.17
13.000	50	15 minute 2 year Winter I+0%	48.750	47.449	-0.101	0.000	0.24
13.001	51	15 minute 2 year Winter I+0%	46.850	45.701	0.051	0.000	1.32
1.012	52	60 minute 2 year Winter I+0%	46.500	45.309	-0.268	0.000	0.18
1.013	53	60 minute 2 year Winter I+0%	44.600	43.272	-0.280	0.000	0.15
14.000	54	15 minute 2 year Winter I+0%	46.000	44.684	-0.066	0.000	0.59
14.001	55	15 minute 2 year Winter I+0%	45.000	43.239	-0.161	0.000	0.43
15.000	56	15 minute 2 year Winter I+0%	46.950	45.429	-0.121	0.000	0.08
15.001	57	15 minute 2 year Winter I+0%	46.300	43.839	-0.186	0.000	0.07
14.002	58	15 minute 2 year Winter I+0%	45.500	43.122	-0.178	0.000	0.34
14.003	59	15 minute 2 year Winter I+0%	44.200	42.521	-0.179	0.000	0.34
14.004	60	15 minute 2 year Winter I+0%	43.100	41.782	-0.268	0.000	0.34
14.005	61	15 minute 2 year Winter I+0%	43.700	41.592	-0.308	0.000	0.22
16.000	62	15 minute 2 year Winter I+0%	46.500	45.182	-0.118	0.000	0.11
16.001	63	15 minute 2 year Winter I+0%	45.500	44.204	-0.096	0.000	0.28
17.000	64	15 minute 2 year Winter I+0%	46.500	45.195	-0.105	0.000	0.19
17.001	65	15 minute 2 year Winter I+0%	44.650	43.307	-0.093	0.000	0.30
16.002	66	15 minute 2 year Winter I+0%	44.300	43.031	-0.069	0.000	0.55
1.014	67	960 minute 2 year Winter I+0%	41.800	41.490	-0.210	0.000	0.14
18.000	68	15 minute 2 year Winter I+0%	50.100	49.010	-0.940	0.000	0.03
18.001	69	15 minute 2 year Winter I+0%	49.700	48.694	0.044	0.000	1.18
18.002	70	30 minute 2 year Winter I+0%	49.800	48.479	-0.031	0.000	1.03
19.000	71	15 minute 2 year Winter I+0%	50.100	48.838	-0.212	0.000	0.18
20.000	72	15 minute 2 year Winter I+0%	50.100	48.831	-0.144	0.000	0.27
20.001	73	15 minute 2 year Winter I+0%	50.000	48.703	-0.172	0.000	0.13
19.001	74	15 minute 2 year Winter I+0%	50.000	48.418	-0.032	0.000	0.52
19.002	75	15 minute 2 year Winter I+0%	50.050	48.358	0.008	0.000	1.13
19.003	76	15 minute 2 year Winter I+0%	50.050	48.222	-0.068	0.000	0.89
21.000	77	15 minute 2 year Winter I+0%	50.050	48.809	-0.041	0.000	0.68
21.001	78	15 minute 2 year Winter I+0%	50.050	48.766	0.016	0.000	1.08
21.002	79	15 minute 2 year Winter I+0%	50.000	48.558	-0.072	0.000	0.53

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			0.303	12.549	2.0	SURCHARGED
9.001	28			0.707	21.809	3.4	SURCHARGED
9.002	29			0.656	23.748	3.6	SURCHARGED
8.002	30			1.533	40.350	6.2	SURCHARGED
1.009	31			33.060	270.554	11.8	SURCHARGED
1.010	32			0.078	255.934	11.8	OK
10.000	33			0.132	6.690	14.2	OK
10.001	34			0.106	15.053	29.3	OK
10.002	35			0.447	22.078	40.5	OK
10.003	36			1.638	27.767	48.5	OK
10.004	37			1.506	35.687	55.5	OK
10.005	38			3.980	39.149	59.9	SURCHARGED
11.000	39			0.069	7.136	15.2	OK
10.006	40			0.851	56.318	82.1	OK
10.007	41			0.225	63.788	92.7	OK
10.008	42			1.084	68.580	99.3	SURCHARGED*
10.009	43			3.129	70.926	100.1	SURCHARGED
10.010	44			2.388	70.924	95.5	SURCHARGED
10.011	45			2.084	75.826	97.7	SURCHARGED
10.012	46			2.549	76.458	91.6	OK
12.000	47			0.061	4.126	8.7	OK
12.001	48			0.701	8.596	10.7	SURCHARGED
1.011	49	0.0	0.000	63.438	115.558	70.6	OK
13.000	50			0.050	4.349	9.3	OK
13.001	51			0.261	8.586	17.0	SURCHARGED
1.012	52			0.161	205.114	74.3	OK
1.013	53			0.146	204.944	74.4	OK
14.000	54			0.089	10.147	21.7	OK
14.001	55			0.158	16.504	32.9	OK
15.000	56			0.028	2.342	5.0	OK
15.001	57			0.039	4.126	8.2	OK
14.002	58			0.311	23.975	47.4	OK
14.003	59			0.205	29.550	57.7	OK
14.004	60			0.372	34.456	66.0	OK
14.005	61			0.753	34.456	65.5	OK
16.000	62			0.031	1.896	4.1	OK
16.001	63			0.060	5.910	11.3	OK
17.000	64			0.045	3.680	7.9	OK
17.001	65			0.063	4.349	9.0	OK
16.002	66			0.102	12.377	24.1	OK
1.014	67			4.334	931.385	32.9	OK
18.000	68			0.119	17.272	32.0	OK
18.001	69			11.533	26.237	27.6	SURCHARGED
18.002	70			3.064	46.787	35.7	OK
19.000	71			0.146	17.840	37.1	OK
20.000	72			0.086	4.460	9.4	OK
20.001	73			0.115	4.460	9.5	OK
19.001	74			2.293	23.750	42.0	OK
19.002	75			0.907	29.328	50.7	SURCHARGED
19.003	76			1.646	29.329	49.1	OK
21.000	77			0.118	4.348	9.0	OK
21.001	78			0.354	8.140	15.1	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			0.135	9.366	17.2	OK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	15 minute 2 year Winter I+0%	49.950	48.201	-0.059	0.000	0.94
18.004	81	15 minute 2 year Winter I+0%	49.450	48.081	-0.019	0.000	1.02
22.000	82	15 minute 2 year Winter I+0%	49.800	49.073	-0.577	0.000	0.04
23.000	83	15 minute 2 year Winter I+0%	49.800	49.089	-0.561	0.000	0.05
22.001	84	15 minute 2 year Winter I+0%	49.600	48.796	-0.654	0.000	0.05
22.002	85	15 minute 2 year Winter I+0%	49.350	48.535	-0.215	0.000	0.18
18.005	86	30 minute 2 year Winter I+0%	49.300	47.994	-0.121	0.000	0.69
18.006	87	30 minute 2 year Winter I+0%	49.050	47.850	0.045	0.000	0.91
24.000	88	15 minute 2 year Winter I+0%	48.800	48.085	-0.715	0.000	0.04
24.001	89	30 minute 2 year Winter I+0%	48.950	47.752	0.002	0.000	0.60
18.007	90	30 minute 2 year Winter I+0%	49.000	47.729	0.044	0.000	1.31
18.008	91	30 minute 2 year Winter I+0%	48.800	47.415	-0.185	0.000	0.51
18.009	92	30 minute 2 year Winter I+0%	48.400	46.936	-0.189	0.000	0.49
18.010	93	30 minute 2 year Winter I+0%	47.800	46.600	0.000	0.000	1.05
25.000	94	15 minute 2 year Winter I+0%	49.500	48.383	0.083	0.000	1.19
26.000	95	15 minute 2 year Winter I+0%	49.500	48.178	-0.117	0.000	0.45
26.001	96	15 minute 2 year Winter I+0%	49.400	48.052	-0.093	0.000	0.64
25.001	97	15 minute 2 year Winter I+0%	49.150	47.911	-0.189	0.000	0.29
25.002	98	15 minute 2 year Winter I+0%	48.700	47.336	-0.164	0.000	0.41
18.011	99	15 minute 2 year Winter I+0%	47.500	46.287	-0.243	0.000	0.43
18.012	100	15 minute 2 year Winter I+0%	47.200	46.121	0.146	0.000	1.71
27.000	101	15 minute 2 year Winter I+0%	48.950	47.704	-0.046	0.000	0.80
27.001	102	15 minute 2 year Winter I+0%	48.450	47.392	-0.133	0.000	0.35
27.002	103	15 minute 2 year Winter I+0%	47.450	46.397	-0.128	0.000	0.38
18.013	104	30 minute 2 year Winter I+0%	47.200	46.010	0.000	0.000	1.07
28.000	105	15 minute 2 year Winter I+0%	49.550	48.273	-0.077	0.000	0.47
29.000	106	15 minute 2 year Winter I+0%	49.450	48.209	-0.041	0.000	0.85
28.001	107	30 minute 2 year Winter I+0%	49.550	48.136	0.050	0.000	0.63
28.002	108	30 minute 2 year Winter I+0%	49.650	48.117	0.151	0.000	0.85
28.003	109	30 minute 2 year Winter I+0%	49.300	48.101	0.189	0.000	0.37
30.000	110	15 minute 2 year Winter I+0%	49.500	48.266	-0.034	0.000	0.93
30.001	111	15 minute 2 year Winter I+0%	49.350	48.036	-0.077	0.000	0.48
28.004	112	30 minute 2 year Winter I+0%	49.300	47.775	-0.037	0.000	1.00
28.005	113	60 minute 2 year Winter I+0%	48.700	47.542	-0.170	0.000	0.14
18.014	114	120 minute 2 year Winter I+0%	46.600	45.764	-0.086	0.000	0.20
31.000	115	15 minute 2 year Winter I+0%	48.200	47.411	-0.788	0.000	0.01
31.001	116	30 minute 2 year Winter I+0%	47.900	47.249	-0.650	0.000	0.01
31.002	117	30 minute 2 year Winter I+0%	47.900	47.145	-0.008	0.000	1.00
31.003	118	15 minute 2 year Winter I+0%	48.100	47.168	0.088	0.000	0.28
32.000	119	15 minute 2 year Winter I+0%	48.700	47.431	0.071	0.000	1.01
32.001	120	15 minute 2 year Winter I+0%	48.250	47.240	0.146	0.000	1.18
31.004	121	15 minute 2 year Winter I+0%	48.200	47.167	0.157	0.000	1.15
31.005	122	15 minute 2 year Winter I+0%	48.000	47.021	0.151	0.000	1.17
33.000	123	30 minute 2 year Winter I+0%	47.400	46.844	-0.181	0.000	0.05
31.006	124	15 minute 2 year Winter I+0%	47.400	46.842	0.117	0.000	1.36
31.007	125	30 minute 2 year Winter I+0%	47.300	46.748	0.074	0.000	1.39
31.008	126	30 minute 2 year Winter I+0%	46.660	46.523	-0.137	0.000	0.24
31.009	127	30 minute 2 year Winter I+0%	46.560	46.365	-0.110	0.000	0.52
18.015	128	360 minute 2 year Winter I+0%	45.800	45.341	-0.159	0.000	0.05
1.015	129	960 minute 2 year Winter I+0%	41.800	41.475	-0.025	0.000	0.04

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			1.802	80.257	106.5	OK
18.004	81			2.192	80.854	104.0	OK
22.000	82			0.077	7.146	14.6	OK
23.000	83			0.095	4.536	8.7	OK
22.001	84			5.592	17.878	27.8	OK
22.002	85			4.286	17.878	27.6	OK
18.005	86			2.770	135.065	125.2	OK
18.006	87			2.699	136.975	125.9	SURCHARGED
24.000	88			0.090	4.099	8.5	OK
24.001	89			1.191	6.818	7.8	SURCHARGED
18.007	90			1.648	143.766	132.3	SURCHARGED
18.008	91			1.188	153.318	137.5	OK
18.009	92			0.385	157.802	139.8	OK
18.010	93			1.126	162.699	141.0	OK
25.000	94			0.258	8.920	17.9	SURCHARGED
26.000	95			0.116	7.136	15.0	OK
26.001	96			0.442	10.816	21.0	OK
25.001	97			0.296	27.096	51.4	OK
25.002	98			0.202	36.350	67.2	OK
18.011	99			1.704	167.847	180.9	OK
18.012	100			2.421	172.290	185.4	SURCHARGED
27.000	101			0.112	5.910	12.4	OK
27.001	102			0.101	14.719	28.3	OK
27.002	103			0.127	19.959	37.8	OK
18.013	104			3.539	253.029	210.5	OK
28.000	105			0.077	3.568	7.5	OK
29.000	106			0.118	5.575	11.7	OK
28.001	107			0.821	18.114	20.2	SURCHARGED
28.002	108			1.437	25.074	25.2	SURCHARGED
28.003	109			13.179	22.018	10.3	SURCHARGED
30.000	110			0.126	6.133	12.9	OK
30.001	111			0.131	6.802	14.1	OK
28.004	112			7.007	28.580	18.5	OK
28.005	113			17.127	25.845	14.2	OK
18.014	114			248.445	370.143	46.6	OK
31.000	115			0.032	8.499	17.5	OK
31.001	116			6.664	12.626	6.6	OK
31.002	117			5.899	10.433	5.2	OK
31.003	118			0.957	11.001	8.7	SURCHARGED
32.000	119			0.329	15.746	40.4	SURCHARGED
32.001	120			1.763	17.083	36.7	SURCHARGED
31.004	121			1.708	31.711	37.3	SURCHARGED
31.005	122			1.610	34.916	37.9	SURCHARGED
33.000	123			0.044	2.029	2.6	OK
31.006	124			2.200	37.242	37.8	SURCHARGED
31.007	125			0.800	48.812	38.7	SURCHARGED
31.008	126			0.680	51.218	40.5	FLOOD RISK*
31.009	127			0.526	50.988	40.4	FLOOD RISK*
18.015	128			195.434	665.597	43.8	OK
1.015	129			892.484	1763.199	25.0	OK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 2 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 2 year Winter I+0%	49.600	48.778	-0.522	0.000	0.03
34.001	131	15 minute 2 year Winter I+0%	48.800	48.162	-0.338	0.000	0.04
34.002	132	15 minute 2 year Winter I+0%	47.950	47.416	-0.344	0.000	0.37
34.003	133	120 minute 2 year Winter I+0%	47.950	47.383	0.033	0.000	0.37
35.000	134	15 minute 2 year Winter I+0%	49.850	48.517	-0.138	0.000	0.31
34.004	135	15 minute 2 year Winter I+0%	47.800	47.185	-0.115	0.000	0.67
34.005	136	15 minute 2 year Winter I+0%	47.700	47.152	-0.173	0.000	0.56
34.006	137	120 minute 2 year Winter I+0%	47.400	47.039	-0.161	0.000	0.02
36.000	138	15 minute 2 year Winter I+0%	49.900	49.035	-0.565	0.000	0.01
36.001	139	30 minute 2 year Winter I+0%	49.350	48.792	-0.258	0.000	0.01
36.002	140	30 minute 2 year Winter I+0%	48.000	47.371	-0.179	0.000	0.12
37.000	141	15 minute 2 year Winter I+0%	47.400	46.161	-0.189	0.000	0.29
36.003	142	15 minute 2 year Winter I+0%	46.700	46.016	-0.224	0.000	0.15
36.004	143	15 minute 2 year Winter I+0%	46.650	45.402	-0.178	0.000	0.35
38.000	144	15 minute 2 year Winter I+0%	47.600	45.651	-0.174	0.000	0.12
36.005	145	15 minute 2 year Winter I+0%	46.800	45.223	-0.207	0.000	0.21
34.007	146	15 minute 2 year Winter I+0%	45.800	43.948	0.048	0.000	1.48
34.008	147	60 minute 2 year Winter I+0%	44.300	43.755	-0.095	0.000	0.07
39.000	148	15 minute 2 year Winter I+0%	44.200	42.896	-0.104	0.000	0.20
39.001	149	15 minute 2 year Winter I+0%	43.800	42.517	-0.083	0.000	0.41
39.002	150	15 minute 2 year Winter I+0%	42.800	41.528	-0.072	0.000	0.53
34.009	151	240 minute 2 year Winter I+0%	42.300	40.719	0.019	0.000	0.39
40.000	152	15 minute 2 year Winter I+0%	42.600	41.476	-0.074	0.000	0.50
34.010	153	240 minute 2 year Winter I+0%	40.800	40.674	0.149	0.000	0.10
34.011	154	240 minute 2 year Winter I+0%	39.000	38.751	-0.174	0.000	0.12

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.049	6.463	14.3	OK
34.001	131			1.769	12.828	24.3	OK
34.002	132			2.611	20.248	33.8	OK
34.003	133			27.802	38.665	4.3	SURCHARGED
35.000	134			0.093	12.377	25.9	OK
34.004	135			0.619	28.771	40.0	OK
34.005	136			0.663	28.460	39.3	OK
34.006	137			34.943	75.196	10.0	OK
36.000	138			0.034	6.857	16.5	OK
36.001	139			5.208	8.810	4.7	OK
36.002	140			0.429	9.874	5.4	OK
37.000	141			0.120	11.373	24.3	OK
36.003	142			0.172	20.557	29.6	OK
36.004	143			0.156	21.779	31.9	OK
38.000	144			0.052	3.680	7.9	OK
36.005	145			0.204	33.484	53.9	OK
34.007	146			0.903	50.553	58.0	SURCHARGED
34.008	147			31.671	84.923	22.9	OK
39.000	148			0.046	3.122	6.7	OK
39.001	149			0.079	8.921	17.1	OK
39.002	150			0.089	11.708	22.1	OK
34.009	151			0.577	220.597	23.4	SURCHARGED
40.000	152			0.080	7.694	16.3	OK
34.010	153			76.484	223.845	18.4	FLOOD RISK
34.011	154			0.068	223.749	18.4	OK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 2 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 2 year Winter I+0%	46.800	45.528	-0.972	0.000	0.02
41.001	156	15 minute 2 year Winter I+0%	46.350	45.087	-0.963	0.000	0.03
41.002	157	60 minute 2 year Winter I+0%	46.100	44.988	0.013	0.000	0.37
41.003	158	60 minute 2 year Winter I+0%	46.250	44.985	0.060	0.000	0.17
42.000	159	15 minute 2 year Winter I+0%	47.800	47.044	-0.755	0.000	0.01
42.001	160	30 minute 2 year Winter I+0%	47.400	46.715	0.490	0.000	0.09
42.002	161	15 minute 2 year Winter I+0%	46.800	45.446	-0.129	0.000	0.37
42.003	162	15 minute 2 year Winter I+0%	46.500	45.296	-0.109	0.000	0.52
42.004	163	15 minute 2 year Winter I+0%	46.200	45.133	-0.122	0.000	0.43
42.005	164	60 minute 2 year Winter I+0%	45.800	44.995	0.170	0.000	0.52
41.004	165	60 minute 2 year Winter I+0%	45.500	44.981	0.256	0.000	0.16
41.005	166	30 minute 2 year Winter I+0%	45.500	44.361	-0.164	0.000	0.16
41.006	167	15 minute 2 year Winter I+0%	45.000	43.891	-0.134	0.000	0.33
43.000	168	15 minute 2 year Winter I+0%	47.650	46.339	-0.111	0.000	0.15
43.001	169	15 minute 2 year Winter I+0%	47.200	45.885	-0.140	0.000	0.30
43.002	170	15 minute 2 year Winter I+0%	46.950	45.658	-0.147	0.000	0.26
43.003	171	15 minute 2 year Winter I+0%	46.600	45.116	-0.109	0.000	0.52
43.004	172	240 minute 2 year Winter I+0%	44.850	43.975	0.120	0.000	0.29
41.007	173	360 minute 2 year Winter I+0%	44.200	43.536	0.111	0.000	0.61
44.000	174	15 minute 2 year Winter I+0%	48.600	47.092	-0.133	0.000	0.35
44.001	175	15 minute 2 year Winter I+0%	47.850	46.613	-0.187	0.000	0.30
44.002	176	15 minute 2 year Winter I+0%	47.700	46.389	-0.181	0.000	0.33
45.000	177	15 minute 2 year Winter I+0%	47.800	46.496	-0.104	0.000	0.20
44.003	178	15 minute 2 year Winter I+0%	47.350	46.121	0.021	0.000	0.31
44.004	179	15 minute 2 year Winter I+0%	45.950	44.367	-0.163	0.000	0.43
46.000	180	15 minute 2 year Winter I+0%	46.150	44.971	-0.154	0.000	0.21

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 2 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.083	9.165	20.3	OK
41.001	156			1.921	9.168	19.5	OK
41.002	157			3.990	15.177	8.7	SURCHARGED
41.003	158			1.013	15.172	7.3	SURCHARGED
42.000	159			0.045	9.881	21.8	OK
42.001	160			8.964	16.090	6.0	SURCHARGED
42.002	161			0.136	18.241	15.3	OK
42.003	162			0.256	22.701	23.1	OK
42.004	163			0.181	26.715	30.1	OK
42.005	164			0.900	44.017	20.0	SURCHARGED
41.004	165			26.788	58.243	9.9	SURCHARGED
41.005	166			0.070	28.606	11.2	OK
41.006	167			0.126	36.623	20.3	OK
43.000	168			0.039	2.007	4.3	OK
43.001	169			0.091	8.363	15.7	OK
43.002	170			0.122	14.161	26.2	OK
43.003	171			0.144	22.412	41.1	OK
43.004	172			40.029	53.833	3.0	SURCHARGED
41.007	173			26.651	188.376	13.1	SURCHARGED
44.000	174			0.098	6.690	14.4	OK
44.001	175			0.124	18.733	35.9	OK
44.002	176			0.206	23.528	44.5	OK
45.000	177			0.046	2.342	5.0	OK
44.003	178			1.050	32.782	61.6	SURCHARGED
44.004	179			0.203	38.246	71.1	OK
46.000	180			0.075	8.921	18.9	OK

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 2 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	30 minute 2 year Winter I+0%	45.800	44.071	0.071	0.000	0.33
44.006	182	30 minute 2 year Winter I+0%	45.750	43.927	0.127	0.000	1.04
44.007	183	30 minute 2 year Winter I+0%	45.300	43.832	0.132	0.000	0.67
47.000	184	15 minute 2 year Winter I+0%	45.800	44.880	-0.045	0.000	0.81
47.001	185	15 minute 2 year Winter I+0%	45.300	44.741	-0.119	0.000	0.65
47.002	186	15 minute 2 year Winter I+0%	44.200	43.854	0.134	0.000	1.98
47.003	187	360 minute 2 year Winter I+0%	44.100	43.523	0.003	0.000	0.40
44.008	188	360 minute 2 year Winter I+0%	44.100	43.525	0.055	0.000	1.19
41.008	189	360 minute 2 year Winter I+0%	44.000	43.507	0.182	0.000	0.80

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			1.414	64.926	73.9	SURCHARGED
44.006	182			1.292	71.456	80.4	SURCHARGED
44.007	183			27.134	61.979	60.0	SURCHARGED
47.000	184			0.113	5.464	11.5	OK
47.001	185			0.287	9.812	18.7	OK
47.002	186			1.108	10.802	19.5	SURCHARGED
47.003	187			26.675	25.117	2.3	SURCHARGED
44.008	188			26.194	159.323	19.4	SURCHARGED
41.008	189			93.334	329.660	19.3	SURCHARGED

1 in 30 year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	30
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	30 minute 30 year Winter I+0%	51.500	50.666	-0.684	0.000	0.02
1.001	2	30 minute 30 year Winter I+0%	51.150	50.663	0.663	0.000	0.68
2.000	3	15 minute 30 year Winter I+0%	51.900	50.857	-0.893	0.000	0.04
1.002	4	30 minute 30 year Winter I+0%	51.450	50.634	0.774	0.000	0.87
1.003	5	15 minute 30 year Winter I+0%	51.550	50.524	0.739	0.000	1.02
1.004	6	15 minute 30 year Winter I+0%	51.600	50.452	0.777	0.000	1.37
1.005	7	15 minute 30 year Winter I+0%	51.450	50.384	0.754	0.000	1.44
1.006	8	15 minute 30 year Winter I+0%	51.350	50.273	0.708	0.000	1.38
3.000	9	15 minute 30 year Winter I+0%	50.600	50.095	0.695	0.000	0.86
1.007	10	15 minute 30 year Winter I+0%	50.450	50.010	0.460	0.000	0.54
4.000	11	15 minute 30 year Winter I+0%	51.200	50.686	0.686	0.000	1.85
4.001	12	15 minute 30 year Winter I+0%	51.100	50.145	0.125	0.000	0.55
5.000	13	15 minute 30 year Winter I+0%	51.300	50.093	-0.082	0.000	0.18
4.002	14	15 minute 30 year Winter I+0%	51.200	50.070	0.110	0.000	0.87
4.003	15	15 minute 30 year Winter I+0%	51.000	49.990	0.080	0.000	0.91
4.004	16	15 minute 30 year Winter I+0%	51.000	49.905	0.055	0.000	0.99
4.005	17	15 minute 30 year Winter I+0%	51.000	49.830	0.030	0.000	1.01
4.006	18	15 minute 30 year Winter I+0%	51.000	49.752	0.012	0.000	1.09
4.007	19	240 minute 30 year Winter I+0%	50.850	49.672	0.042	0.000	0.22
6.000	20	240 minute 30 year Winter I+0%	50.325	49.671	-0.504	0.000	0.01
6.001	21	240 minute 30 year Winter I+0%	50.250	49.671	0.071	0.000	0.26
1.008	22	240 minute 30 year Winter I+0%	50.000	49.667	0.442	0.000	0.28
7.000	23	240 minute 30 year Winter I+0%	50.100	49.541	0.432	0.000	0.27
7.001	24	240 minute 30 year Winter I+0%	49.900	49.539	0.498	0.000	0.24
8.000	25	15 minute 30 year Winter I+0%	50.200	49.738	0.576	0.000	1.16
8.001	26	15 minute 30 year Winter I+0%	50.100	49.544	0.532	0.000	1.63

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.238	30.533	27.9	OK
1.001	2			39.250	50.615	40.1	SURCHARGED
2.000	3			0.115	26.165	55.2	OK
1.002	4			16.376	99.751	49.4	SURCHARGED
1.003	5			2.641	97.027	60.2	SURCHARGED
1.004	6			3.429	106.441	72.2	SURCHARGED
1.005	7			2.051	112.985	79.4	SURCHARGED
1.006	8			2.438	118.209	81.8	SURCHARGED
3.000	9			0.950	7.150	11.5	SURCHARGED
1.007	10			5.062	131.372	102.3	SURCHARGED
4.000	11			0.940	14.671	25.3	SURCHARGED
4.001	12			0.905	18.240	30.6	SURCHARGED
5.000	13			0.156	4.465	9.5	OK
4.002	14			2.175	29.099	48.2	SURCHARGED
4.003	15			1.295	33.139	51.9	SURCHARGED
4.004	16			1.421	36.542	55.8	SURCHARGED
4.005	17			1.164	38.673	58.9	SURCHARGED
4.006	18			1.297	44.202	63.8	SURCHARGED
4.007	19			2.411	103.981	18.0	SURCHARGED
6.000	20			0.131	29.289	5.2	OK
6.001	21			10.260	38.585	6.9	SURCHARGED
1.008	22			298.125	245.106	13.3	SURCHARGED
7.000	23			0.653	20.862	3.5	SURCHARGED
7.001	24			0.888	20.152	3.4	SURCHARGED
8.000	25			0.816	9.021	16.0	SURCHARGED
8.001	26			1.137	12.474	21.9	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	15 minute 30 year Winter I+0%	49.950	49.788	0.624	0.000	1.25
9.001	28	15 minute 30 year Winter I+0%	49.900	49.615	0.564	0.000	2.16
9.002	29	240 minute 30 year Winter I+0%	49.850	49.541	0.481	0.000	0.21
8.002	30	240 minute 30 year Winter I+0%	49.950	49.539	0.564	0.000	0.40
1.009	31	240 minute 30 year Winter I+0%	49.700	49.537	0.687	0.000	0.47
1.010	32	240 minute 30 year Winter I+0%	49.300	48.165	-0.085	0.000	0.40
10.000	33	15 minute 30 year Winter I+0%	50.900	50.160	0.460	0.000	1.76
10.001	34	15 minute 30 year Winter I+0%	50.800	49.996	0.396	0.000	0.44
10.002	35	15 minute 30 year Winter I+0%	50.300	49.881	0.781	0.000	1.05
10.003	36	15 minute 30 year Winter I+0%	50.550	49.747	0.807	0.000	1.15
10.004	37	15 minute 30 year Winter I+0%	50.350	49.636	0.796	0.000	0.76
10.005	38	15 minute 30 year Winter I+0%	50.250	49.557	0.827	0.000	1.00
11.000	39	15 minute 30 year Winter I+0%	51.150	49.950	-0.050	0.000	0.76
10.006	40	15 minute 30 year Winter I+0%	50.550	48.523	-0.137	0.000	0.56
10.007	41	15 minute 30 year Winter I+0%	49.300	48.058	-0.042	0.000	0.44
10.008	42	15 minute 30 year Winter I+0%	48.350	47.867	0.717	0.000	1.20
10.009	43	15 minute 30 year Winter I+0%	48.800	47.700	0.680	0.000	1.75
10.010	44	15 minute 30 year Winter I+0%	49.000	47.553	0.583	0.000	1.52
10.011	45	15 minute 30 year Winter I+0%	49.350	47.415	0.505	0.000	1.77
10.012	46	15 minute 30 year Winter I+0%	48.900	47.221	0.371	0.000	2.11
12.000	47	30 minute 30 year Winter I+0%	47.850	46.843	0.043	0.000	0.47
12.001	48	30 minute 30 year Winter I+0%	47.500	46.837	0.187	0.000	0.68
1.011	49	30 minute 30 year Winter I+0%	47.100	46.829	0.054	0.000	0.25
13.000	50	15 minute 30 year Winter I+0%	48.750	47.471	-0.079	0.000	0.45
13.001	51	15 minute 30 year Winter I+0%	46.850	46.114	0.464	0.000	2.69
1.012	52	60 minute 30 year Winter I+0%	46.500	45.340	-0.237	0.000	0.29
1.013	53	60 minute 30 year Winter I+0%	44.600	43.300	-0.252	0.000	0.24
14.000	54	15 minute 30 year Winter I+0%	46.000	44.907	0.157	0.000	1.05
14.001	55	15 minute 30 year Winter I+0%	45.000	43.314	-0.086	0.000	0.84
15.000	56	15 minute 30 year Winter I+0%	46.950	45.440	-0.110	0.000	0.16
15.001	57	15 minute 30 year Winter I+0%	46.300	43.857	-0.168	0.000	0.14
14.002	58	15 minute 30 year Winter I+0%	45.500	43.187	-0.113	0.000	0.70
14.003	59	15 minute 30 year Winter I+0%	44.200	42.587	-0.113	0.000	0.70
14.004	60	15 minute 30 year Winter I+0%	43.100	41.890	-0.160	0.000	0.72
14.005	61	15 minute 30 year Winter I+0%	43.700	41.703	-0.197	0.000	0.44
16.000	62	15 minute 30 year Winter I+0%	46.500	45.196	-0.104	0.000	0.20
16.001	63	15 minute 30 year Winter I+0%	45.500	44.236	-0.064	0.000	0.62
17.000	64	15 minute 30 year Winter I+0%	46.500	45.213	-0.087	0.000	0.37
17.001	65	15 minute 30 year Winter I+0%	44.650	43.443	0.043	0.000	0.57
16.002	66	15 minute 30 year Winter I+0%	44.300	43.348	0.248	0.000	1.07
1.014	67	1440 minute 30 year Winter I+0%	41.800	41.700	0.000	0.000	0.15
18.000	68	15 minute 30 year Winter I+0%	50.100	49.063	-0.887	0.000	0.03
18.001	69	30 minute 30 year Winter I+0%	49.700	48.982	0.332	0.000	1.54
18.002	70	30 minute 30 year Winter I+0%	49.800	48.858	0.348	0.000	1.28
19.000	71	15 minute 30 year Winter I+0%	50.100	48.940	-0.110	0.000	0.35
20.000	72	15 minute 30 year Winter I+0%	50.100	48.912	-0.063	0.000	0.52
20.001	73	15 minute 30 year Winter I+0%	50.000	48.895	0.020	0.000	0.23
19.001	74	15 minute 30 year Winter I+0%	50.000	48.881	0.431	0.000	0.78
19.002	75	15 minute 30 year Winter I+0%	50.050	48.792	0.442	0.000	1.76
19.003	76	15 minute 30 year Winter I+0%	50.050	48.689	0.399	0.000	1.40
21.000	77	15 minute 30 year Winter I+0%	50.050	49.308	0.458	0.000	1.16
21.001	78	15 minute 30 year Winter I+0%	50.050	49.174	0.424	0.000	2.00
21.002	79	15 minute 30 year Winter I+0%	50.000	48.822	0.192	0.000	0.92

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			0.870	9.370	16.8	FLOOD RISK
9.001	28			1.079	15.783	27.7	SURCHARGED
9.002	29			0.948	39.591	6.7	SURCHARGED
8.002	30			1.824	67.229	11.6	SURCHARGED
1.009	31			74.575	286.149	12.6	FLOOD RISK
1.010	32			0.081	285.824	12.6	OK
10.000	33			0.684	12.756	25.4	SURCHARGED
10.001	34			0.981	28.698	54.8	SURCHARGED
10.002	35			3.504	42.089	62.8	SURCHARGED*
10.003	36			4.568	52.940	76.8	SURCHARGED
10.004	37			3.337	68.032	94.0	SURCHARGED
10.005	38			5.875	75.337	99.3	SURCHARGED
11.000	39			0.107	13.607	29.1	OK
10.006	40			1.797	108.076	161.8	OK
10.007	41			1.146	122.320	186.1	OK
10.008	42			4.223	131.459	184.7	SURCHARGED*
10.009	43			4.453	135.915	188.7	SURCHARGED
10.010	44			3.428	135.914	186.7	SURCHARGED
10.011	45			3.062	145.259	196.7	SURCHARGED
10.012	46			3.444	146.492	191.6	SURCHARGED
12.000	47			0.212	10.174	13.0	SURCHARGED
12.001	48			1.129	16.298	18.2	SURCHARGED
1.011	49	0.0	0.000	106.267	206.306	108.0	SURCHARGED
13.000	50			0.074	8.292	17.7	OK
13.001	51			0.863	16.371	34.7	SURCHARGED
1.012	52			0.223	343.040	120.3	OK
1.013	53			0.202	342.867	120.3	OK
14.000	54			0.342	19.347	38.3	SURCHARGED
14.001	55			0.259	31.466	64.8	OK
15.000	56			0.040	4.465	9.6	OK
15.001	57			0.059	7.867	17.3	OK
14.002	58			0.617	45.712	96.3	OK
14.003	59			0.404	56.342	120.1	OK
14.004	60			0.724	65.695	138.8	OK
14.005	61			2.102	65.696	133.8	OK
16.000	62			0.046	3.615	7.7	OK
16.001	63			0.100	11.268	25.2	OK
17.000	64			0.066	7.016	15.0	OK
17.001	65			0.248	8.292	17.3	SURCHARGED
16.002	66			0.650	23.600	46.9	SURCHARGED
1.014	67			7.710	1701.919	36.9	FLOOD RISK
18.000	68			0.179	33.438	28.0	OK
18.001	69			36.132	65.391	35.8	SURCHARGED
18.002	70			5.023	89.110	44.4	SURCHARGED
19.000	71			0.327	34.021	70.7	OK
20.000	72			0.177	8.505	17.9	OK
20.001	73			0.837	8.506	17.6	SURCHARGED
19.001	74			10.143	45.290	63.7	SURCHARGED
19.002	75			1.474	55.924	78.9	SURCHARGED
19.003	76			2.820	55.925	76.7	SURCHARGED
21.000	77			0.682	8.291	15.4	SURCHARGED
21.001	78			0.891	15.519	28.0	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			0.654	17.858	29.8	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	15 minute 30 year Winter I+0%	49.950	48.620	0.360	0.000	1.40
18.004	81	15 minute 30 year Winter I+0%	49.450	48.511	0.411	0.000	1.44
22.000	82	15 minute 30 year Winter I+0%	49.800	49.108	-0.542	0.000	0.07
23.000	83	15 minute 30 year Winter I+0%	49.800	49.132	-0.518	0.000	0.10
22.001	84	15 minute 30 year Winter I+0%	49.600	48.836	-0.614	0.000	0.09
22.002	85	15 minute 30 year Winter I+0%	49.350	48.566	-0.184	0.000	0.32
18.005	86	15 minute 30 year Winter I+0%	49.300	48.409	0.294	0.000	0.99
18.006	87	15 minute 30 year Winter I+0%	49.050	48.108	0.303	0.000	1.31
24.000	88	15 minute 30 year Winter I+0%	48.800	48.126	-0.674	0.000	0.06
24.001	89	15 minute 30 year Winter I+0%	48.950	47.943	0.193	0.000	0.93
18.007	90	15 minute 30 year Winter I+0%	49.000	47.891	0.206	0.000	1.90
18.008	91	30 minute 30 year Winter I+0%	48.800	47.502	-0.098	0.000	0.76
18.009	92	30 minute 30 year Winter I+0%	48.400	47.235	0.110	0.000	0.75
18.010	93	30 minute 30 year Winter I+0%	47.800	46.971	0.371	0.000	1.64
25.000	94	15 minute 30 year Winter I+0%	49.500	49.015	0.715	0.000	2.13
26.000	95	15 minute 30 year Winter I+0%	49.500	48.304	0.009	0.000	0.83
26.001	96	15 minute 30 year Winter I+0%	49.400	48.200	0.055	0.000	1.22
25.001	97	15 minute 30 year Winter I+0%	49.150	47.961	-0.139	0.000	0.55
25.002	98	15 minute 30 year Winter I+0%	48.700	47.428	-0.072	0.000	0.82
18.011	99	15 minute 30 year Winter I+0%	47.500	46.836	0.306	0.000	0.72
18.012	100	15 minute 30 year Winter I+0%	47.200	46.547	0.572	0.000	2.90
27.000	101	15 minute 30 year Winter I+0%	48.950	48.002	0.252	0.000	1.44
27.001	102	15 minute 30 year Winter I+0%	48.450	47.444	-0.081	0.000	0.71
27.002	103	15 minute 30 year Winter I+0%	47.450	46.509	-0.016	0.000	0.79
18.013	104	15 minute 30 year Winter I+0%	47.200	46.234	0.224	0.000	1.94
28.000	105	30 minute 30 year Winter I+0%	49.550	48.844	0.494	0.000	0.56
29.000	106	15 minute 30 year Winter I+0%	49.450	48.881	0.631	0.000	1.29
28.001	107	30 minute 30 year Winter I+0%	49.550	48.822	0.736	0.000	1.03
28.002	108	30 minute 30 year Winter I+0%	49.650	48.787	0.821	0.000	1.58
28.003	109	30 minute 30 year Winter I+0%	49.300	48.758	0.846	0.000	0.60
30.000	110	15 minute 30 year Winter I+0%	49.500	48.641	0.341	0.000	1.66
30.001	111	15 minute 30 year Winter I+0%	49.350	48.116	0.003	0.000	0.83
28.004	112	30 minute 30 year Winter I+0%	49.300	48.019	0.207	0.000	1.78
28.005	113	60 minute 30 year Winter I+0%	48.700	47.567	-0.145	0.000	0.28
18.014	114	120 minute 30 year Winter I+0%	46.600	46.093	0.243	0.000	0.20
31.000	115	15 minute 30 year Winter I+0%	48.200	47.427	-0.772	0.000	0.01
31.001	116	60 minute 30 year Winter I+0%	47.900	47.392	-0.507	0.000	0.01
31.002	117	30 minute 30 year Winter I+0%	47.900	47.362	0.209	0.000	-2.65
31.003	118	15 minute 30 year Winter I+0%	48.100	47.729	0.649	0.000	0.41
32.000	119	15 minute 30 year Winter I+0%	48.700	48.123	0.763	0.000	1.34
32.001	120	15 minute 30 year Winter I+0%	48.250	47.914	0.820	0.000	1.55
31.004	121	15 minute 30 year Winter I+0%	48.200	47.766	0.756	0.000	1.48
31.005	122	15 minute 30 year Winter I+0%	48.000	47.539	0.669	0.000	1.65
33.000	123	15 minute 30 year Winter I+0%	47.400	47.180	0.155	0.000	0.11
31.006	124	15 minute 30 year Winter I+0%	47.400	47.172	0.447	0.000	2.02
31.007	125	15 minute 30 year Winter I+0%	47.300	46.967	0.293	0.000	2.08
31.008	126	30 minute 30 year Winter I+0%	46.660	46.557	-0.103	0.000	0.37
31.009	127	30 minute 30 year Winter I+0%	46.560	46.402	-0.073	0.000	0.79
18.015	128	480 minute 30 year Winter I+0%	45.800	45.496	-0.004	0.000	0.05
1.015	129	960 minute 30 year Winter I+0%	41.800	41.642	0.142	0.000	0.07

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			4.680	153.562	158.1	SURCHARGED
18.004	81			4.469	155.050	146.9	SURCHARGED
22.000	82			0.116	13.920	27.8	OK
23.000	83			0.143	8.782	16.5	OK
22.001	84			8.999	34.964	49.9	OK
22.002	85			6.865	34.964	49.6	OK
18.005	86			5.273	199.138	180.5	SURCHARGED
18.006	87			3.976	202.132	181.7	SURCHARGED
24.000	88			0.137	7.941	14.2	OK
24.001	89			3.852	10.067	12.1	SURCHARGED
18.007	90			1.943	212.182	191.4	SURCHARGED
18.008	91			2.046	292.400	204.3	OK
18.009	92			1.621	300.851	213.0	SURCHARGED
18.010	93			2.492	309.970	219.9	SURCHARGED
25.000	94			0.973	17.007	31.9	SURCHARGED
26.000	95			0.259	13.606	27.6	SURCHARGED
26.001	96			1.356	20.620	40.2	SURCHARGED
25.001	97			0.596	51.659	97.6	OK
25.002	98			0.412	69.305	132.2	OK
18.011	99			6.837	322.262	303.7	SURCHARGED
18.012	100			3.843	330.130	314.0	SURCHARGED
27.000	101			0.449	11.267	22.2	SURCHARGED
27.001	102			0.198	28.063	57.8	OK
27.002	103			0.361	38.055	78.7	OK
18.013	104			4.098	371.562	381.7	SURCHARGED
28.000	105			0.723	8.799	9.0	SURCHARGED
29.000	106			0.878	10.630	17.7	SURCHARGED
28.001	107			2.001	34.137	32.9	SURCHARGED
28.002	108			2.201	46.453	46.8	SURCHARGED
28.003	109			24.523	36.976	16.9	SURCHARGED
30.000	110			0.549	11.693	22.9	SURCHARGED
30.001	111			0.361	12.968	24.6	SURCHARGED
28.004	112			10.706	53.458	32.9	SURCHARGED
28.005	113			17.786	65.164	28.9	OK
18.014	114			549.134	542.240	46.9	SURCHARGED
31.000	115			0.050	16.054	24.4	OK
31.001	116			20.894	30.889	7.8	OK
31.002	117			15.089	6.929	-13.7	SURCHARGED
31.003	118			1.592	13.219	12.6	SURCHARGED
32.000	119			8.067	34.648	53.4	SURCHARGED
32.001	120			2.738	37.199	48.3	SURCHARGED
31.004	121			2.385	57.155	47.8	SURCHARGED
31.005	122			2.212	63.118	53.4	SURCHARGED
33.000	123			0.424	2.975	5.9	FLOOD RISK
31.006	124			2.847	67.482	56.5	FLOOD RISK
31.007	125			1.054	69.226	57.8	SURCHARGED
31.008	126			0.898	89.520	62.2	FLOOD RISK*
31.009	127			1.059	89.176	62.1	FLOOD RISK*
18.015	128			327.866	1296.485	45.0	OK
1.015	129			1499.021	2819.637	41.4	FLOOD RISK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 30 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	30
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 30 year Winter I+0%	49.600	48.801	-0.499	0.000	0.04
34.001	131	15 minute 30 year Winter I+0%	48.800	48.367	-0.133	0.000	0.07
34.002	132	120 minute 30 year Winter I+0%	47.950	47.553	-0.207	0.000	0.26
34.003	133	120 minute 30 year Winter I+0%	47.950	47.545	0.195	0.000	0.69
35.000	134	15 minute 30 year Winter I+0%	49.850	48.557	-0.098	0.000	0.59
34.004	135	15 minute 30 year Winter I+0%	47.800	47.406	0.106	0.000	1.21
34.005	136	15 minute 30 year Winter I+0%	47.700	47.325	0.000	0.000	1.01
34.006	137	120 minute 30 year Winter I+0%	47.400	47.161	-0.039	0.000	0.03
36.000	138	15 minute 30 year Winter I+0%	49.900	49.051	-0.549	0.000	0.03
36.001	139	30 minute 30 year Winter I+0%	49.350	48.898	-0.152	0.000	0.01
36.002	140	30 minute 30 year Winter I+0%	48.000	47.402	-0.148	0.000	0.17
37.000	141	15 minute 30 year Winter I+0%	47.400	46.211	-0.139	0.000	0.56
36.003	142	15 minute 30 year Winter I+0%	46.700	46.051	-0.189	0.000	0.29
36.004	143	15 minute 30 year Winter I+0%	46.650	45.468	-0.112	0.000	0.69
38.000	144	15 minute 30 year Winter I+0%	47.600	45.672	-0.153	0.000	0.22
36.005	145	15 minute 30 year Winter I+0%	46.800	45.270	-0.160	0.000	0.43
34.007	146	15 minute 30 year Winter I+0%	45.800	44.343	0.443	0.000	3.08
34.008	147	60 minute 30 year Winter I+0%	44.300	43.946	0.096	0.000	0.08
39.000	148	15 minute 30 year Winter I+0%	44.200	42.915	-0.085	0.000	0.39
39.001	149	15 minute 30 year Winter I+0%	43.800	42.591	-0.009	0.000	0.89
39.002	150	15 minute 30 year Winter I+0%	42.800	41.838	0.238	0.000	1.12
34.009	151	360 minute 30 year Winter I+0%	42.300	40.835	0.135	0.000	0.55
40.000	152	15 minute 30 year Winter I+0%	42.600	41.517	-0.033	0.000	0.95
34.010	153	360 minute 30 year Winter I+0%	40.800	40.754	0.229	0.000	0.18
34.011	154	360 minute 30 year Winter I+0%	39.000	38.770	-0.155	0.000	0.21

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.074	12.536	23.6	OK
34.001	131			5.236	24.967	41.8	OK
34.002	132			5.324	75.145	23.8	OK
34.003	133			45.744	59.112	8.1	SURCHARGED
35.000	134			0.138	23.600	49.5	OK
34.004	135			1.485	50.508	72.4	SURCHARGED
34.005	136			1.186	50.136	71.0	OK
34.006	137			71.528	134.861	13.0	FLOOD RISK
36.000	138			0.053	13.935	31.5	OK
36.001	139			11.923	15.174	6.1	OK
36.002	140			0.629	16.972	7.5	OK
37.000	141			0.177	21.685	46.3	OK
36.003	142			0.276	39.770	58.3	OK
36.004	143			0.266	42.081	63.7	OK
38.000	144			0.076	7.016	15.0	OK
36.005	145			0.433	64.380	111.3	OK
34.007	146			1.990	100.723	120.7	SURCHARGED
34.008	147			67.632	149.358	26.9	SURCHARGED
39.000	148			0.068	5.953	12.7	OK
39.001	149			0.181	17.009	37.0	OK
39.002	150			0.513	22.324	47.1	SURCHARGED
34.009	151			0.844	444.432	32.7	SURCHARGED
40.000	152			0.127	14.670	31.0	OK
34.010	153			95.938	471.949	33.0	FLOOD RISK
34.011	154			0.095	471.901	33.0	FLOOD RISK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 30 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	30
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 30 year Winter I+0%	46.800	45.565	-0.935	0.000	0.04
41.001	156	120 minute 30 year Winter I+0%	46.350	45.242	-0.808	0.000	0.01
41.002	157	120 minute 30 year Winter I+0%	46.100	45.243	0.268	0.000	0.26
41.003	158	120 minute 30 year Winter I+0%	46.250	45.240	0.315	0.000	0.12
42.000	159	15 minute 30 year Winter I+0%	47.800	47.065	-0.734	0.000	0.02
42.001	160	60 minute 30 year Winter I+0%	47.400	46.829	0.604	0.000	0.10
42.002	161	15 minute 30 year Winter I+0%	46.800	45.552	-0.023	0.000	0.73
42.003	162	15 minute 30 year Winter I+0%	46.500	45.477	0.072	0.000	1.01
42.004	163	15 minute 30 year Winter I+0%	46.200	45.343	0.088	0.000	0.82
42.005	164	120 minute 30 year Winter I+0%	45.800	45.253	0.428	0.000	0.60
41.004	165	120 minute 30 year Winter I+0%	45.500	45.238	0.513	0.000	0.16
41.005	166	15 minute 30 year Winter I+0%	45.500	44.369	-0.156	0.000	0.20
41.006	167	15 minute 30 year Winter I+0%	45.000	43.929	-0.096	0.000	0.62
43.000	168	15 minute 30 year Winter I+0%	47.650	46.356	-0.094	0.000	0.29
43.001	169	15 minute 30 year Winter I+0%	47.200	45.938	-0.087	0.000	0.69
43.002	170	15 minute 30 year Winter I+0%	46.950	45.751	-0.054	0.000	0.58
43.003	171	15 minute 30 year Winter I+0%	46.600	45.583	0.358	0.000	1.11
43.004	172	240 minute 30 year Winter I+0%	44.850	44.273	0.418	0.000	0.41
41.007	173	360 minute 30 year Winter I+0%	44.200	43.662	0.237	0.000	0.68
44.000	174	15 minute 30 year Winter I+0%	48.600	47.135	-0.090	0.000	0.65
44.001	175	15 minute 30 year Winter I+0%	47.850	46.829	0.029	0.000	0.61
44.002	176	15 minute 30 year Winter I+0%	47.700	46.684	0.114	0.000	0.64
45.000	177	15 minute 30 year Winter I+0%	47.800	46.541	-0.059	0.000	0.36
44.003	178	15 minute 30 year Winter I+0%	47.350	46.486	0.386	0.000	0.62
44.004	179	15 minute 30 year Winter I+0%	45.950	45.127	0.597	0.000	0.81
46.000	180	15 minute 30 year Winter I+0%	46.150	45.001	-0.124	0.000	0.41

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 30 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.125	17.862	37.0	OK
41.001	156			4.972	33.193	8.4	OK
41.002	157			14.721	31.332	6.2	SURCHARGED
41.003	158			1.327	30.362	5.0	SURCHARGED
42.000	159			0.068	19.736	38.4	OK
42.001	160			22.216	38.744	6.5	SURCHARGED
42.002	161			0.393	31.159	29.9	OK
42.003	162			1.076	39.476	44.7	SURCHARGED
42.004	163			0.911	46.962	57.5	SURCHARGED
42.005	164			1.442	98.312	23.1	SURCHARGED
41.004	165			54.279	116.816	9.9	SURCHARGED
41.005	166			0.079	30.888	13.8	OK
41.006	167			0.206	41.177	37.8	OK
43.000	168			0.057	3.827	8.2	OK
43.001	169			0.161	15.945	35.8	OK
43.002	170			0.379	27.001	58.9	OK
43.003	171			0.970	42.731	88.2	SURCHARGED
43.004	172			76.865	83.608	4.1	SURCHARGED
41.007	173			36.779	322.533	14.7	SURCHARGED
44.000	174			0.147	12.757	26.6	OK
44.001	175			0.759	35.718	72.0	SURCHARGED
44.002	176			1.292	44.860	86.2	SURCHARGED
45.000	177			0.097	4.465	9.0	OK
44.003	178			2.832	62.505	122.8	SURCHARGED
44.004	179			2.432	72.923	133.8	SURCHARGED
46.000	180			0.109	17.009	36.1	OK

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 30 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	15 minute 30 year Winter I+0%	45.800	44.808	0.808	0.000	0.76
44.006	182	15 minute 30 year Winter I+0%	45.750	44.660	0.860	0.000	2.39
44.007	183	30 minute 30 year Winter I+0%	45.300	44.326	0.626	0.000	0.93
47.000	184	15 minute 30 year Winter I+0%	45.800	45.438	0.513	0.000	1.20
47.001	185	15 minute 30 year Winter I+0%	45.300	45.233	0.373	0.000	0.99
47.002	186	15 minute 30 year Winter I+0%	44.200	44.122	0.402	0.000	3.05
47.003	187	360 minute 30 year Winter I+0%	44.100	43.671	0.151	0.000	0.59
44.008	188	60 minute 30 year Winter I+0%	44.100	43.677	0.207	0.000	3.48
41.008	189	360 minute 30 year Winter I+0%	44.000	43.631	0.306	0.000	1.07

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			4.275	95.246	171.1	SURCHARGED
44.006	182			2.615	104.922	184.5	SURCHARGED
44.007	183			59.361	126.797	83.8	SURCHARGED
47.000	184			0.745	10.417	17.0	SURCHARGED
47.001	185			1.071	18.710	28.4	FLOOD RISK
47.002	186			2.033	20.523	29.9	FLOOD RISK
47.003	187			52.601	43.196	3.3	SURCHARGED
44.008	188			39.860	132.352	56.8	SURCHARGED
41.008	189			130.310	573.653	25.7	SURCHARGED

1 in 100 year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	30 minute 100 year Winter I+0%	51.500	50.877	-0.473	0.000	0.02
1.001	2	30 minute 100 year Winter I+0%	51.150	50.870	0.870	0.000	0.58
2.000	3	15 minute 100 year Winter I+0%	51.900	50.876	-0.874	0.000	0.03
1.002	4	30 minute 100 year Winter I+0%	51.450	50.810	0.950	0.000	0.88
1.003	5	15 minute 100 year Winter I+0%	51.550	50.862	1.077	0.000	1.07
1.004	6	15 minute 100 year Winter I+0%	51.600	50.833	1.158	0.000	1.42
1.005	7	15 minute 100 year Winter I+0%	51.450	50.763	1.133	0.000	1.56
1.006	8	15 minute 100 year Winter I+0%	51.350	50.669	1.104	0.000	1.53
3.000	9	15 minute 100 year Winter I+0%	50.600	50.452	1.052	0.000	1.29
1.007	10	15 minute 100 year Winter I+0%	50.450	50.317	0.767	0.000	0.65
4.000	11	15 minute 100 year Winter I+0%	51.200	51.200	1.200	0.067	2.35
4.001	12	15 minute 100 year Winter I+0%	51.100	50.319	0.299	0.000	0.70
5.000	13	15 minute 100 year Winter I+0%	51.300	50.267	0.092	0.000	0.22
4.002	14	15 minute 100 year Winter I+0%	51.200	50.247	0.287	0.000	1.11
4.003	15	15 minute 100 year Winter I+0%	51.000	50.173	0.263	0.000	1.21
4.004	16	15 minute 100 year Winter I+0%	51.000	50.086	0.236	0.000	1.34
4.005	17	15 minute 100 year Winter I+0%	51.000	50.001	0.201	0.000	1.36
4.006	18	15 minute 100 year Winter I+0%	51.000	49.912	0.172	0.000	1.47
4.007	19	240 minute 100 year Winter I+0%	50.850	49.804	0.174	0.000	0.26
6.000	20	240 minute 100 year Winter I+0%	50.325	49.803	-0.372	0.000	0.01
6.001	21	240 minute 100 year Winter I+0%	50.250	49.804	0.204	0.000	0.32
1.008	22	240 minute 100 year Winter I+0%	50.000	49.797	0.572	0.000	0.36
7.000	23	15 minute 100 year Winter I+0%	50.100	49.766	0.657	0.000	1.73
7.001	24	240 minute 100 year Winter I+0%	49.900	49.615	0.574	0.000	0.32
8.000	25	15 minute 100 year Winter I+0%	50.200	50.191	1.029	0.000	1.47
8.001	26	15 minute 100 year Winter I+0%	50.100	49.862	0.850	0.000	2.07

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.477	39.237	27.6	OK
1.001	2			50.169	53.345	34.1	SURCHARGED
2.000	3			0.136	34.509	51.7	OK
1.002	4			38.232	115.783	49.9	SURCHARGED
1.003	5			3.024	125.257	63.1	SURCHARGED
1.004	6			3.860	135.861	74.8	SURCHARGED
1.005	7			2.479	143.341	86.3	SURCHARGED
1.006	8			2.886	148.644	90.8	SURCHARGED
3.000	9			1.354	9.205	17.3	FLOOD RISK
1.007	10			5.502	165.364	121.7	FLOOD RISK
4.000	11			1.588	19.214	32.2	FLOOD
4.001	12			1.102	23.898	38.8	SURCHARGED
5.000	13			0.353	5.848	11.4	SURCHARGED
4.002	14			2.446	38.098	61.2	SURCHARGED
4.003	15			1.516	43.393	68.8	SURCHARGED
4.004	16			1.658	47.847	75.4	SURCHARGED
4.005	17			1.393	50.597	79.1	SURCHARGED
4.006	18			1.532	57.580	86.5	SURCHARGED
4.007	19			2.754	132.156	21.7	SURCHARGED
6.000	20			0.281	35.926	6.5	OK
6.001	21			18.387	45.488	8.6	SURCHARGED
1.008	22			379.363	314.216	16.7	FLOOD RISK
7.000	23			0.908	11.947	22.2	SURCHARGED
7.001	24			0.973	26.025	4.4	SURCHARGED
8.000	25			1.327	11.805	20.3	FLOOD RISK
8.001	26			1.496	16.507	27.9	FLOOD RISK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	15 minute 100 year Winter I+0%	49.950	49.948	0.784	0.000	1.45
9.001	28	15 minute 100 year Winter I+0%	49.900	49.843	0.792	0.000	2.57
9.002	29	240 minute 100 year Winter I+0%	49.850	49.617	0.557	0.000	0.27
8.002	30	240 minute 100 year Winter I+0%	49.950	49.614	0.639	0.000	0.51
1.009	31	240 minute 100 year Winter I+0%	49.700	49.610	0.760	0.000	0.73
1.010	32	240 minute 100 year Winter I+0%	49.300	48.185	-0.065	0.000	0.62
10.000	33	15 minute 100 year Winter I+0%	50.900	50.901	1.201	0.593	1.86
10.001	34	15 minute 100 year Winter I+0%	50.800	50.692	1.092	0.000	0.46
10.002	35	15 minute 100 year Winter I+0%	50.300	50.300	1.200	0.000	1.25
10.003	36	15 minute 100 year Winter I+0%	50.550	50.288	1.348	0.000	1.41
10.004	37	15 minute 100 year Winter I+0%	50.350	50.129	1.289	0.000	0.99
10.005	38	15 minute 100 year Winter I+0%	50.250	50.047	1.317	0.000	0.97
11.000	39	15 minute 100 year Winter I+0%	51.150	49.988	-0.012	0.000	0.99
10.006	40	15 minute 100 year Winter I+0%	50.550	48.606	-0.054	0.000	0.65
10.007	41	15 minute 100 year Winter I+0%	49.300	48.451	0.351	0.000	0.47
10.008	42	15 minute 100 year Winter I+0%	48.350	48.199	1.049	0.000	1.31
10.009	43	15 minute 100 year Winter I+0%	48.800	47.969	0.949	0.000	1.95
10.010	44	15 minute 100 year Winter I+0%	49.000	47.781	0.811	0.000	1.71
10.011	45	15 minute 100 year Winter I+0%	49.350	47.617	0.707	0.000	2.03
10.012	46	15 minute 100 year Winter I+0%	48.900	47.371	0.521	0.000	2.41
12.000	47	60 minute 100 year Winter I+0%	47.850	46.977	0.177	0.000	0.38
12.001	48	60 minute 100 year Winter I+0%	47.500	46.968	0.318	0.000	0.60
1.011	49	60 minute 100 year Winter I+0%	47.100	46.958	0.183	0.000	0.25
13.000	50	15 minute 100 year Winter I+0%	48.750	47.483	-0.067	0.000	0.59
13.001	51	15 minute 100 year Winter I+0%	46.850	46.454	0.804	0.000	3.45
1.012	52	30 minute 100 year Winter I+0%	46.500	45.351	-0.226	0.000	0.33
1.013	53	60 minute 100 year Winter I+0%	44.600	43.309	-0.243	0.000	0.27
14.000	54	15 minute 100 year Winter I+0%	46.000	45.567	0.817	0.000	1.25
14.001	55	15 minute 100 year Winter I+0%	45.000	43.372	-0.028	0.000	1.00
15.000	56	15 minute 100 year Winter I+0%	46.950	45.447	-0.103	0.000	0.21
15.001	57	15 minute 100 year Winter I+0%	46.300	43.866	-0.159	0.000	0.19
14.002	58	15 minute 100 year Winter I+0%	45.500	43.215	-0.085	0.000	0.85
14.003	59	15 minute 100 year Winter I+0%	44.200	42.618	-0.082	0.000	0.87
14.004	60	15 minute 100 year Winter I+0%	43.100	41.941	-0.109	0.000	0.90
14.005	61	15 minute 100 year Winter I+0%	43.700	41.817	-0.083	0.000	0.56
16.000	62	15 minute 100 year Winter I+0%	46.500	45.202	-0.098	0.000	0.26
16.001	63	15 minute 100 year Winter I+0%	45.500	44.448	0.148	0.000	0.76
17.000	64	15 minute 100 year Winter I+0%	46.500	45.224	-0.076	0.000	0.48
17.001	65	15 minute 100 year Winter I+0%	44.650	44.074	0.674	0.000	0.69
16.002	66	15 minute 100 year Winter I+0%	44.300	43.949	0.849	0.000	1.22
1.014	67	15 minute 100 year Winter I+0%	41.800	41.715	0.015	0.000	1.31
18.000	68	30 minute 100 year Winter I+0%	50.100	49.222	-0.728	0.000	0.03
18.001	69	30 minute 100 year Winter I+0%	49.700	49.216	0.566	0.000	1.82
18.002	70	30 minute 100 year Winter I+0%	49.800	49.128	0.618	0.000	1.31
19.000	71	15 minute 100 year Winter I+0%	50.100	49.548	0.498	0.000	0.43
20.000	72	15 minute 100 year Winter I+0%	50.100	49.470	0.495	0.000	0.67
20.001	73	15 minute 100 year Winter I+0%	50.000	49.435	0.560	0.000	0.26
19.001	74	15 minute 100 year Winter I+0%	50.000	49.417	0.967	0.000	0.92
19.002	75	15 minute 100 year Winter I+0%	50.050	49.310	0.960	0.000	1.97
19.003	76	15 minute 100 year Winter I+0%	50.050	49.077	0.787	0.000	1.60
21.000	77	15 minute 100 year Winter I+0%	50.050	49.880	1.030	0.000	1.26
21.001	78	15 minute 100 year Winter I+0%	50.050	49.738	0.988	0.000	2.20
21.002	79	15 minute 100 year Winter I+0%	50.000	49.281	0.651	0.000	0.99

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			1.051	12.261	19.5	FLOOD RISK
9.001	28			1.338	20.806	33.0	FLOOD RISK
9.002	29			1.033	51.133	8.7	FLOOD RISK
8.002	30			1.909	87.187	15.1	SURCHARGED
1.009	31			91.058	365.888	19.6	FLOOD RISK
1.010	32			0.108	365.545	19.6	OK
10.000	33			2.105	16.707	26.8	FLOOD
10.001	34			1.768	37.580	57.2	FLOOD RISK
10.002	35			4.253	55.127	74.6	FLOOD RISK*
10.003	36			5.180	69.322	94.2	SURCHARGED
10.004	37			4.209	89.086	121.9	FLOOD RISK
10.005	38			14.720	98.891	95.7	FLOOD RISK
11.000	39			0.151	17.821	37.5	OK
10.006	40			3.179	141.770	187.9	OK
10.007	41			4.236	160.425	194.6	SURCHARGED
10.008	42			5.083	172.412	201.7	FLOOD RISK*
10.009	43			4.929	178.265	209.4	SURCHARGED
10.010	44			3.829	178.261	209.3	SURCHARGED
10.011	45			3.419	190.497	224.8	SURCHARGED
10.012	46			3.709	192.100	218.7	SURCHARGED
12.000	47			0.364	16.400	10.3	SURCHARGED
12.001	48			1.277	26.562	16.0	SURCHARGED
1.011	49	7.8	4.111	146.257	387.913	107.9	FLOOD RISK
13.000	50			0.089	10.860	23.2	OK
13.001	51			1.360	21.441	44.6	SURCHARGED
1.012	52			0.245	295.240	136.5	OK
1.013	53			0.222	440.770	135.4	OK
14.000	54			1.088	25.339	45.5	SURCHARGED
14.001	55			0.347	41.212	76.6	OK
15.000	56			0.047	5.848	12.5	OK
15.001	57			0.070	10.304	22.6	OK
14.002	58			0.753	59.869	117.8	OK
14.003	59			0.516	73.791	149.1	OK
14.004	60			0.911	86.042	173.3	OK
14.005	61			3.729	86.042	168.3	OK
16.000	62			0.054	4.734	10.1	OK
16.001	63			0.399	14.758	30.9	SURCHARGED
17.000	64			0.078	9.189	19.7	OK
17.001	65			1.155	10.860	20.7	SURCHARGED
16.002	66			1.508	30.909	53.4	SURCHARGED
1.014	67			7.902	360.154	317.0	FLOOD RISK
18.000	68			0.358	57.160	28.9	OK
18.001	69			59.807	82.767	42.3	SURCHARGED
18.002	70			5.500	111.979	45.3	SURCHARGED
19.000	71			1.401	44.542	87.3	SURCHARGED
20.000	72			0.809	11.140	22.9	SURCHARGED
20.001	73			1.710	11.142	19.9	SURCHARGED
19.001	74			11.836	59.304	75.1	SURCHARGED
19.002	75			2.059	73.232	88.2	SURCHARGED
19.003	76			3.259	73.233	87.8	SURCHARGED
21.000	77			1.329	10.859	16.7	FLOOD RISK
21.001	78			1.528	20.326	30.8	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			1.174	23.389	32.1	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	15 minute 100 year Winter I+0%	49.950	48.956	0.696	0.000	1.52
18.004	81	30 minute 100 year Winter I+0%	49.450	48.824	0.724	0.000	1.47
22.000	82	15 minute 100 year Winter I+0%	49.800	49.127	-0.523	0.000	0.10
23.000	83	15 minute 100 year Winter I+0%	49.800	49.156	-0.494	0.000	0.13
22.001	84	15 minute 100 year Winter I+0%	49.600	48.859	-0.591	0.000	0.12
22.002	85	30 minute 100 year Winter I+0%	49.350	48.793	0.043	0.000	0.54
18.005	86	30 minute 100 year Winter I+0%	49.300	48.698	0.583	0.000	1.06
18.006	87	30 minute 100 year Winter I+0%	49.050	48.380	0.575	0.000	1.41
24.000	88	30 minute 100 year Winter I+0%	48.800	48.165	-0.635	0.000	0.06
24.001	89	30 minute 100 year Winter I+0%	48.950	48.158	0.408	0.000	1.39
18.007	90	30 minute 100 year Winter I+0%	49.000	48.156	0.471	0.000	2.12
18.008	91	30 minute 100 year Winter I+0%	48.800	47.892	0.292	0.000	0.84
18.009	92	30 minute 100 year Winter I+0%	48.400	47.651	0.526	0.000	0.82
18.010	93	30 minute 100 year Winter I+0%	47.800	47.385	0.785	0.000	1.78
25.000	94	15 minute 100 year Winter I+0%	49.500	49.500	1.200	0.154	2.55
26.000	95	15 minute 100 year Winter I+0%	49.500	48.599	0.304	0.000	1.03
26.001	96	15 minute 100 year Winter I+0%	49.400	48.463	0.318	0.000	1.50
25.001	97	15 minute 100 year Winter I+0%	49.150	48.215	0.115	0.000	0.65
25.002	98	15 minute 100 year Winter I+0%	48.700	47.963	0.463	0.000	0.91
18.011	99	15 minute 100 year Winter I+0%	47.500	47.211	0.681	0.000	0.86
18.012	100	15 minute 100 year Winter I+0%	47.200	46.798	0.823	0.000	3.42
27.000	101	15 minute 100 year Winter I+0%	48.950	48.319	0.569	0.000	1.83
27.001	102	15 minute 100 year Winter I+0%	48.450	47.548	0.023	0.000	0.88
27.002	103	15 minute 100 year Winter I+0%	47.450	46.818	0.293	0.000	0.95
18.013	104	15 minute 100 year Winter I+0%	47.200	46.366	0.356	0.000	2.32
28.000	105	30 minute 100 year Winter I+0%	49.550	49.334	0.984	0.000	0.62
29.000	106	15 minute 100 year Winter I+0%	49.450	49.450	1.200	0.078	1.56
28.001	107	30 minute 100 year Winter I+0%	49.550	49.273	1.187	0.000	1.26
28.002	108	30 minute 100 year Winter I+0%	49.650	49.169	1.203	0.000	1.94
28.003	109	30 minute 100 year Winter I+0%	49.300	49.110	1.198	0.000	0.70
30.000	110	15 minute 100 year Winter I+0%	49.500	48.999	0.699	0.000	2.02
30.001	111	15 minute 100 year Winter I+0%	49.350	48.335	0.222	0.000	0.92
28.004	112	30 minute 100 year Winter I+0%	49.300	48.180	0.368	0.000	2.18
28.005	113	30 minute 100 year Winter I+0%	48.700	47.582	-0.130	0.000	0.37
18.014	114	120 minute 100 year Winter I+0%	46.600	46.295	0.445	0.000	0.20
31.000	115	60 minute 100 year Winter I+0%	48.200	47.488	-0.711	0.000	0.01
31.001	116	60 minute 100 year Winter I+0%	47.900	47.488	-0.411	0.000	0.01
31.002	117	60 minute 100 year Winter I+0%	47.900	47.480	0.327	0.000	-2.42
31.003	118	15 minute 100 year Winter I+0%	48.100	47.962	0.882	0.000	0.45
32.000	119	15 minute 100 year Winter I+0%	48.700	48.181	0.821	0.000	1.39
32.001	120	15 minute 100 year Winter I+0%	48.250	48.072	0.978	0.000	1.61
31.004	121	15 minute 100 year Winter I+0%	48.200	47.996	0.986	0.000	1.51
31.005	122	15 minute 100 year Winter I+0%	48.000	47.788	0.918	0.000	1.79
33.000	123	15 minute 100 year Winter I+0%	47.400	47.382	0.357	0.000	0.13
31.006	124	15 minute 100 year Winter I+0%	47.400	47.368	0.643	0.000	2.27
31.007	125	15 minute 100 year Winter I+0%	47.300	47.103	0.429	0.000	2.39
31.008	126	15 minute 100 year Winter I+0%	46.660	46.571	-0.089	0.000	0.43
31.009	127	30 minute 100 year Winter I+0%	46.560	46.419	-0.056	0.000	0.92
18.015	128	480 minute 100 year Winter I+0%	45.800	45.591	0.091	0.000	0.05
1.015	129	960 minute 100 year Winter I+0%	41.800	41.708	0.208	0.000	0.09

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			5.276	201.148	171.5	SURCHARGED
18.004	81			5.023	256.592	149.4	SURCHARGED
22.000	82			0.138	18.332	36.1	OK
23.000	83			0.170	11.547	21.8	OK
22.001	84			11.319	46.091	68.0	OK
22.002	85			19.227	60.160	83.7	SURCHARGED
18.005	86			6.306	331.222	192.6	SURCHARGED
18.006	87			4.380	336.096	195.5	SURCHARGED
24.000	88			0.181	13.612	13.9	OK
24.001	89			10.448	17.229	18.0	SURCHARGED
18.007	90			2.322	352.332	213.0	SURCHARGED
18.008	91			3.543	375.573	226.6	SURCHARGED
18.009	92			2.796	386.373	233.4	SURCHARGED
18.010	93			3.161	397.365	238.8	SURCHARGED
25.000	94			1.667	22.275	38.2	FLOOD
26.000	95			0.592	17.820	34.1	SURCHARGED
26.001	96			1.843	27.010	49.5	SURCHARGED
25.001	97			1.787	67.662	114.0	SURCHARGED
25.002	98			1.955	90.773	147.4	SURCHARGED
18.011	99			8.411	422.189	360.1	SURCHARGED
18.012	100			4.202	431.939	370.6	SURCHARGED
27.000	101			0.808	14.757	28.4	SURCHARGED
27.001	102			0.465	36.752	71.5	SURCHARGED
27.002	103			1.144	49.839	94.6	SURCHARGED
18.013	104			4.411	485.474	458.1	SURCHARGED
28.000	105			1.277	11.573	9.9	FLOOD RISK
29.000	106			1.599	13.921	21.5	FLOOD
28.001	107			2.511	44.358	40.5	SURCHARGED
28.002	108			2.634	60.435	57.4	SURCHARGED
28.003	109			32.475	44.898	19.6	FLOOD RISK
30.000	110			0.955	15.314	27.9	SURCHARGED
30.001	111			0.888	16.984	27.2	SURCHARGED
28.004	112			12.359	67.962	40.3	SURCHARGED
28.005	113			18.165	50.715	38.9	OK
18.014	114			773.775	540.702	46.9	SURCHARGED
31.000	115			0.119	32.955	13.9	OK
31.001	116			33.403	32.357	8.9	OK
31.002	117			20.077	27.215	-12.5	SURCHARGED
31.003	118			1.855	12.576	13.7	FLOOD RISK
32.000	119			19.628	46.969	55.7	SURCHARGED
32.001	120			2.916	50.303	50.2	FLOOD RISK
31.004	121			2.645	71.760	48.8	FLOOD RISK
31.005	122			2.493	79.616	58.0	FLOOD RISK
33.000	123			0.653	3.898	7.2	FLOOD RISK
31.006	124			3.069	85.377	63.4	FLOOD RISK
31.007	125			1.207	87.707	66.4	FLOOD RISK
31.008	126			0.971	92.523	71.5	FLOOD RISK*
31.009	127			1.301	113.067	71.7	FLOOD RISK*
18.015	128			418.318	1647.503	45.0	FLOOD RISK
1.015	129			1785.189	3366.153	53.3	FLOOD RISK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 100 year Winter I+0%	49.600	48.813	-0.487	0.000	0.05
34.001	131	15 minute 100 year Winter I+0%	48.800	48.496	-0.004	0.000	0.08
34.002	132	120 minute 100 year Winter I+0%	47.950	47.671	-0.089	0.000	0.33
34.003	133	120 minute 100 year Winter I+0%	47.950	47.663	0.313	0.000	0.76
35.000	134	15 minute 100 year Winter I+0%	49.850	48.583	-0.072	0.000	0.77
34.004	135	15 minute 100 year Winter I+0%	47.800	47.527	0.227	0.000	1.65
34.005	136	15 minute 100 year Winter I+0%	47.700	47.359	0.034	0.000	1.38
34.006	137	120 minute 100 year Winter I+0%	47.400	47.251	0.051	0.000	0.03
36.000	138	15 minute 100 year Winter I+0%	49.900	49.061	-0.539	0.000	0.03
36.001	139	30 minute 100 year Winter I+0%	49.350	48.951	-0.099	0.000	0.01
36.002	140	30 minute 100 year Winter I+0%	48.000	47.432	-0.118	0.000	0.20
37.000	141	15 minute 100 year Winter I+0%	47.400	46.243	-0.107	0.000	0.73
36.003	142	15 minute 100 year Winter I+0%	46.700	46.069	-0.171	0.000	0.37
36.004	143	15 minute 100 year Winter I+0%	46.650	45.507	-0.073	0.000	0.90
38.000	144	15 minute 100 year Winter I+0%	47.600	45.683	-0.142	0.000	0.29
36.005	145	15 minute 100 year Winter I+0%	46.800	45.294	-0.136	0.000	0.56
34.007	146	15 minute 100 year Winter I+0%	45.800	44.697	0.797	0.000	4.04
34.008	147	120 minute 100 year Winter I+0%	44.300	44.100	0.250	0.000	0.08
39.000	148	15 minute 100 year Winter I+0%	44.200	43.168	0.168	0.000	0.47
39.001	149	15 minute 100 year Winter I+0%	43.800	43.094	0.494	0.000	0.96
39.002	150	15 minute 100 year Winter I+0%	42.800	42.156	0.556	0.000	1.24
34.009	151	240 minute 100 year Winter I+0%	42.300	40.852	0.152	0.000	0.64
40.000	152	15 minute 100 year Winter I+0%	42.600	41.859	0.309	0.000	1.12
34.010	153	240 minute 100 year Winter I+0%	40.800	40.771	0.246	0.000	0.21
34.011	154	240 minute 100 year Winter I+0%	39.000	38.774	-0.151	0.000	0.24

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.089	16.490	27.9	OK
34.001	131			8.526	32.870	50.6	OK
34.002	132			9.199	97.094	29.9	OK
34.003	133			57.948	74.283	9.0	SURCHARGED
35.000	134			0.167	30.908	64.8	OK
34.004	135			1.798	66.880	98.9	SURCHARGED
34.005	136			1.246	66.269	97.4	SURCHARGED
34.006	137			101.867	151.131	13.0	FLOOD RISK
36.000	138			0.063	18.540	40.2	OK
36.001	139			16.808	17.530	6.7	OK
36.002	140			0.823	19.890	8.6	OK
37.000	141			0.213	28.401	60.6	OK
36.003	142			0.375	50.997	75.9	OK
36.004	143			0.342	53.980	83.1	OK
38.000	144			0.089	9.189	19.7	OK
36.005	145			0.575	83.136	145.6	OK
34.007	146			2.961	125.970	158.7	SURCHARGED
34.008	147			101.154	295.164	26.9	FLOOD RISK
39.000	148			0.354	7.797	15.4	SURCHARGED
39.001	149			0.887	22.276	40.0	SURCHARGED
39.002	150			0.954	29.237	52.3	SURCHARGED
34.009	151			0.885	503.211	37.8	SURCHARGED
40.000	152			0.514	19.210	36.5	SURCHARGED
34.010	153			100.394	501.135	36.7	FLOOD RISK
34.011	154			0.101	500.894	36.7	FLOOD RISK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 100 year Winter I+0%	46.800	45.586	-0.914	0.000	0.05
41.001	156	120 minute 100 year Winter I+0%	46.350	45.358	-0.692	0.000	0.01
41.002	157	120 minute 100 year Winter I+0%	46.100	45.358	0.383	0.000	0.24
41.003	158	120 minute 100 year Winter I+0%	46.250	45.356	0.431	0.000	0.11
42.000	159	15 minute 100 year Winter I+0%	47.800	47.077	-0.722	0.000	0.02
42.001	160	60 minute 100 year Winter I+0%	47.400	46.894	0.669	0.000	0.10
42.002	161	15 minute 100 year Winter I+0%	46.800	45.916	0.341	0.000	0.75
42.003	162	15 minute 100 year Winter I+0%	46.500	45.821	0.416	0.000	1.12
42.004	163	15 minute 100 year Winter I+0%	46.200	45.626	0.371	0.000	0.96
42.005	164	120 minute 100 year Winter I+0%	45.800	45.370	0.545	0.000	0.73
41.004	165	120 minute 100 year Winter I+0%	45.500	45.354	0.629	0.000	0.16
41.005	166	15 minute 100 year Summer I+0%	45.500	44.371	-0.154	0.000	0.22
41.006	167	15 minute 100 year Winter I+0%	45.000	43.948	-0.077	0.000	0.76
43.000	168	15 minute 100 year Winter I+0%	47.650	46.485	0.035	0.000	0.38
43.001	169	15 minute 100 year Winter I+0%	47.200	46.442	0.417	0.000	0.79
43.002	170	15 minute 100 year Winter I+0%	46.950	46.323	0.518	0.000	0.61
43.003	171	15 minute 100 year Winter I+0%	46.600	46.108	0.883	0.000	1.24
43.004	172	240 minute 100 year Winter I+0%	44.850	44.461	0.606	0.000	0.44
41.007	173	240 minute 100 year Winter I+0%	44.200	43.747	0.322	0.000	0.70
44.000	174	15 minute 100 year Winter I+0%	48.600	47.473	0.248	0.000	0.76
44.001	175	15 minute 100 year Winter I+0%	47.850	47.298	0.498	0.000	0.67
44.002	176	15 minute 100 year Winter I+0%	47.700	47.156	0.586	0.000	0.73
45.000	177	15 minute 100 year Winter I+0%	47.800	46.954	0.354	0.000	0.49
44.003	178	15 minute 100 year Winter I+0%	47.350	46.892	0.792	0.000	0.69
44.004	179	15 minute 100 year Winter I+0%	45.950	45.613	1.083	0.000	0.93
46.000	180	15 minute 100 year Winter I+0%	46.150	45.381	0.256	0.000	0.48

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.148	23.521	47.8	OK
41.001	156			10.866	33.515	8.5	OK
41.002	157			19.710	28.085	5.8	SURCHARGED
41.003	158			1.458	26.767	4.6	SURCHARGED
42.000	159			0.082	24.055	43.2	OK
42.001	160			32.709	41.481	6.8	SURCHARGED
42.002	161			1.529	35.656	31.0	SURCHARGED
42.003	162			1.574	46.599	49.8	SURCHARGED
42.004	163			1.264	56.136	67.7	SURCHARGED
42.005	164			1.578	127.006	27.7	SURCHARGED
41.004	165			70.789	121.383	9.9	FLOOD RISK
41.005	166			0.083	31.445	15.0	OK
41.006	167			0.254	44.231	46.7	OK
43.000	168			0.203	5.012	10.6	SURCHARGED
43.001	169			0.961	20.884	40.9	SURCHARGED
43.002	170			1.489	35.363	62.0	SURCHARGED
43.003	171			1.642	55.963	98.5	SURCHARGED
43.004	172			103.012	97.557	4.4	SURCHARGED
41.007	173			43.577	330.489	15.0	SURCHARGED
44.000	174			0.529	16.705	31.1	SURCHARGED
44.001	175			2.890	46.777	78.7	SURCHARGED
44.002	176			1.906	58.751	98.0	SURCHARGED
45.000	177			0.564	5.847	12.1	SURCHARGED
44.003	178			3.374	81.861	137.1	SURCHARGED
44.004	179			3.910	95.505	154.1	SURCHARGED
46.000	180			0.538	22.268	42.7	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	15 minute 100 year Winter I+0%	45.800	45.186	1.186	0.000	0.89
44.006	182	15 minute 100 year Winter I+0%	45.750	45.036	1.236	0.000	2.80
44.007	183	30 minute 100 year Winter I+0%	45.300	44.676	0.976	0.000	1.10
47.000	184	15 minute 100 year Winter I+0%	45.800	45.768	0.843	0.000	1.78
47.001	185	15 minute 100 year Winter I+0%	45.300	45.303	0.443	2.760	1.01
47.002	186	15 minute 100 year Winter I+0%	44.200	44.188	0.468	0.000	3.25
47.003	187	360 minute 100 year Winter I+0%	44.100	43.761	0.241	0.000	0.58
44.008	188	60 minute 100 year Winter I+0%	44.100	43.782	0.312	0.000	3.76
41.008	189	240 minute 100 year Winter I+0%	44.000	43.713	0.388	0.000	1.21

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			5.195	124.734	199.7	SURCHARGED
44.006	182			3.278	137.307	216.8	SURCHARGED
44.007	183			83.153	170.260	98.9	SURCHARGED
47.000	184			1.118	13.642	25.4	FLOOD RISK
47.001	185			3.903	24.503	29.2	FLOOD
47.002	186			2.259	26.792	32.0	FLOOD RISK
47.003	187			68.166	56.559	3.3	SURCHARGED
44.008	188			54.829	171.881	61.3	SURCHARGED
41.008	189			157.432	562.892	29.0	SURCHARGED

1 in 100 (+20%climate change) year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	20

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	30 minute 100 year Winter I+20%	51.500	51.044	-0.306	0.000	0.02
1.001	2	30 minute 100 year Winter I+20%	51.150	51.038	1.038	0.000	0.68
2.000	3	30 minute 100 year Winter I+20%	51.900	50.966	-0.784	0.000	0.03
1.002	4	30 minute 100 year Winter I+20%	51.450	50.964	1.104	0.000	0.88
1.003	5	15 minute 100 year Winter I+20%	51.550	51.071	1.286	0.000	1.05
1.004	6	15 minute 100 year Winter I+20%	51.600	51.051	1.376	0.000	1.51
1.005	7	15 minute 100 year Winter I+20%	51.450	51.004	1.374	0.000	1.63
1.006	8	15 minute 100 year Winter I+20%	51.350	50.875	1.310	0.000	1.63
3.000	9	15 minute 100 year Winter I+20%	50.600	50.601	1.201	0.661	1.80
1.007	10	15 minute 100 year Winter I+20%	50.450	50.450	0.900	0.515	0.70
4.000	11	15 minute 100 year Winter I+20%	51.200	51.203	1.203	2.658	2.34
4.001	12	15 minute 100 year Winter I+20%	51.100	50.610	0.590	0.000	0.71
5.000	13	15 minute 100 year Winter I+20%	51.300	50.561	0.386	0.000	0.22
4.002	14	15 minute 100 year Winter I+20%	51.200	50.536	0.576	0.000	1.22
4.003	15	15 minute 100 year Winter I+20%	51.000	50.460	0.550	0.000	1.34
4.004	16	15 minute 100 year Winter I+20%	51.000	50.373	0.523	0.000	1.48
4.005	17	15 minute 100 year Winter I+20%	51.000	50.283	0.483	0.000	1.47
4.006	18	15 minute 100 year Winter I+20%	51.000	50.168	0.428	0.000	1.62
4.007	19	240 minute 100 year Winter I+20%	50.850	49.913	0.283	0.000	0.29
6.000	20	240 minute 100 year Winter I+20%	50.325	49.912	-0.263	0.000	0.02
6.001	21	240 minute 100 year Winter I+20%	50.250	49.912	0.312	0.000	0.35
1.008	22	240 minute 100 year Winter I+20%	50.000	49.905	0.680	0.000	0.46
7.000	23	15 minute 100 year Winter I+20%	50.100	50.053	0.944	0.000	2.03
7.001	24	15 minute 100 year Winter I+20%	49.900	49.801	0.760	0.000	1.75
8.000	25	15 minute 100 year Winter I+20%	50.200	50.202	1.040	1.638	1.55
8.001	26	15 minute 100 year Winter I+20%	50.100	49.985	0.973	0.000	2.27

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.666	38.985	27.9	OK
1.001	2			56.241	47.338	39.8	FLOOD RISK
2.000	3			0.239	54.198	46.2	OK
1.002	4			60.924	121.792	49.9	SURCHARGED
1.003	5			3.260	140.401	61.4	SURCHARGED
1.004	6			4.106	152.244	79.6	SURCHARGED
1.005	7			2.752	160.906	89.9	SURCHARGED
1.006	8			3.119	166.962	97.2	SURCHARGED
3.000	9			2.179	10.994	24.2	FLOOD
1.007	10			6.184	187.474	132.2	FLOOD
4.000	11			4.179	23.054	32.1	FLOOD
4.001	12			1.431	28.683	39.3	SURCHARGED
5.000	13			0.686	7.017	11.3	SURCHARGED
4.002	14			2.773	45.727	67.4	SURCHARGED
4.003	15			1.840	52.074	76.5	SURCHARGED
4.004	16			1.982	57.337	83.2	SURCHARGED
4.005	17			1.713	60.447	85.4	SURCHARGED
4.006	18			1.822	68.561	94.9	SURCHARGED
4.007	19			2.877	157.722	24.4	SURCHARGED
6.000	20			0.404	41.822	7.2	OK
6.001	21			25.061	52.033	9.3	SURCHARGED
1.008	22			453.849	390.301	21.4	FLOOD RISK
7.000	23			1.232	14.393	26.2	FLOOD RISK
7.001	24			1.184	13.643	24.3	FLOOD RISK
8.000	25			2.968	14.200	21.4	FLOOD
8.001	26			1.635	19.987	30.6	FLOOD RISK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	15 minute 100 year Winter I+20%	49.950	49.954	0.790	4.465	1.54
9.001	28	15 minute 100 year Winter I+20%	49.900	49.893	0.842	0.000	2.68
9.002	29	240 minute 100 year Winter I+20%	49.850	49.663	0.603	0.000	0.33
8.002	30	240 minute 100 year Winter I+20%	49.950	49.659	0.684	0.000	0.62
1.009	31	240 minute 100 year Winter I+20%	49.700	49.655	0.805	0.000	0.95
1.010	32	240 minute 100 year Winter I+20%	49.300	48.202	-0.048	0.000	0.80
10.000	33	15 minute 100 year Winter I+20%	50.900	50.904	1.204	4.289	2.01
10.001	34	15 minute 100 year Winter I+20%	50.800	50.803	1.203	2.835	0.51
10.002	35	15 minute 100 year Winter I+20%	50.300	50.300	1.200	0.000	1.36
10.003	36	15 minute 100 year Winter I+20%	50.550	50.481	1.541	0.000	1.66
10.004	37	15 minute 100 year Winter I+20%	50.350	50.287	1.447	0.000	1.19
10.005	38	15 minute 100 year Winter I+20%	50.250	50.204	1.474	0.000	0.99
11.000	39	15 minute 100 year Winter I+20%	51.150	50.374	0.374	0.000	1.05
10.006	40	15 minute 100 year Winter I+20%	50.550	49.002	0.342	0.000	0.65
10.007	41	15 minute 100 year Winter I+20%	49.300	48.781	0.681	0.000	0.50
10.008	42	15 minute 100 year Winter I+20%	48.350	48.350	1.200	0.000	1.46
10.009	43	15 minute 100 year Winter I+20%	48.800	48.233	1.213	0.000	2.15
10.010	44	15 minute 100 year Winter I+20%	49.000	47.993	1.023	0.000	1.89
10.011	45	15 minute 100 year Winter I+20%	49.350	47.775	0.865	0.000	2.22
10.012	46	15 minute 100 year Winter I+20%	48.900	47.486	0.636	0.000	2.68
12.000	47	60 minute 100 year Winter I+20%	47.850	47.052	0.252	0.000	0.45
12.001	48	60 minute 100 year Winter I+20%	47.500	47.044	0.394	0.000	0.75
1.011	49	60 minute 100 year Winter I+20%	47.100	47.033	0.258	0.000	0.25
13.000	50	15 minute 100 year Winter I+20%	48.750	47.572	0.022	0.000	0.67
13.001	51	15 minute 100 year Winter I+20%	46.850	46.751	1.101	0.000	4.00
1.012	52	30 minute 100 year Winter I+20%	46.500	45.361	-0.216	0.000	0.37
1.013	53	60 minute 100 year Winter I+20%	44.600	43.321	-0.231	0.000	0.32
14.000	54	15 minute 100 year Winter I+20%	46.000	46.001	1.251	0.769	1.37
14.001	55	15 minute 100 year Winter I+20%	45.000	43.444	0.044	0.000	1.14
15.000	56	15 minute 100 year Winter I+20%	46.950	45.451	-0.099	0.000	0.25
15.001	57	15 minute 100 year Winter I+20%	46.300	43.873	-0.152	0.000	0.23
14.002	58	15 minute 100 year Winter I+20%	45.500	43.316	0.016	0.000	0.96
14.003	59	15 minute 100 year Winter I+20%	44.200	42.770	0.070	0.000	0.96
14.004	60	15 minute 100 year Winter I+20%	43.100	42.052	0.002	0.000	1.00
14.005	61	15 minute 100 year Winter I+20%	43.700	41.920	0.020	0.000	0.60
16.000	62	15 minute 100 year Winter I+20%	46.500	45.208	-0.092	0.000	0.32
16.001	63	15 minute 100 year Winter I+20%	45.500	44.968	0.668	0.000	0.76
17.000	64	15 minute 100 year Winter I+20%	46.500	45.233	-0.067	0.000	0.58
17.001	65	15 minute 100 year Winter I+20%	44.650	44.511	1.111	0.000	0.80
16.002	66	15 minute 100 year Winter I+20%	44.300	44.300	1.200	0.499	1.31
1.014	67	1440 minute 100 year Winter I+20%	41.800	41.751	0.051	0.000	0.20
18.000	68	30 minute 100 year Winter I+20%	50.100	49.432	-0.518	0.000	0.03
18.001	69	30 minute 100 year Winter I+20%	49.700	49.424	0.774	0.000	1.92
18.002	70	30 minute 100 year Winter I+20%	49.800	49.328	0.818	0.000	1.33
19.000	71	15 minute 100 year Winter I+20%	50.100	49.797	0.747	0.000	0.45
20.000	72	15 minute 100 year Winter I+20%	50.100	49.719	0.744	0.000	0.73
20.001	73	15 minute 100 year Winter I+20%	50.000	49.687	0.812	0.000	0.45
19.001	74	15 minute 100 year Winter I+20%	50.000	49.673	1.223	0.000	1.01
19.002	75	15 minute 100 year Winter I+20%	50.050	49.558	1.208	0.000	2.16
19.003	76	15 minute 100 year Winter I+20%	50.050	49.279	0.989	0.000	1.74
21.000	77	15 minute 100 year Winter I+20%	50.050	50.052	1.202	1.764	1.57
21.001	78	15 minute 100 year Winter I+20%	50.050	50.050	1.300	0.008	2.34
21.002	79	15 minute 100 year Winter I+20%	50.000	49.551	0.921	0.000	1.05

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			5.518	14.750	20.7	FLOOD
9.001	28			1.394	25.136	34.4	FLOOD RISK
9.002	29			1.086	61.790	10.6	FLOOD RISK
8.002	30			1.960	105.629	18.3	SURCHARGED
1.009	31			102.120	456.666	25.3	FLOOD RISK
1.010	32			0.129	456.300	25.3	OK
10.000	33			5.810	20.048	29.0	FLOOD
10.001	34			4.719	45.112	63.4	FLOOD
10.002	35			4.514	66.152	81.5	FLOOD RISK*
10.003	36			5.398	83.203	110.6	FLOOD RISK
10.004	37			4.489	106.920	146.8	FLOOD RISK
10.005	38			22.283	118.845	97.6	FLOOD RISK
11.000	39			0.587	21.385	39.8	SURCHARGED
10.006	40			5.101	170.300	189.3	SURCHARGED
10.007	41			5.314	192.687	211.2	SURCHARGED
10.008	42			5.638	207.059	223.9	FLOOD RISK*
10.009	43			5.394	214.060	230.8	SURCHARGED
10.010	44			4.205	214.051	232.1	SURCHARGED
10.011	45			3.697	228.729	246.0	SURCHARGED
10.012	46			3.912	230.591	242.8	SURCHARGED
12.000	47			0.449	19.680	12.4	SURCHARGED
12.001	48			1.363	31.824	19.9	SURCHARGED
1.011	49	48.5	40.755	171.893	432.282	107.9	FLOOD RISK
13.000	50			0.189	13.032	26.4	SURCHARGED
13.001	51			1.796	25.729	51.6	FLOOD RISK
1.012	52			0.265	320.393	154.3	OK
1.013	53			0.249	531.508	160.1	OK
14.000	54			2.347	30.406	49.9	FLOOD
14.001	55			0.454	49.454	87.6	SURCHARGED*
15.000	56			0.052	7.018	15.0	OK
15.001	57			0.077	12.364	27.1	OK
14.002	58			1.219	71.842	132.2	SURCHARGED
14.003	59			1.214	88.549	164.0	SURCHARGED
14.004	60			1.330	103.250	191.4	SURCHARGED
14.005	61			5.069	103.250	182.5	SURCHARGED
16.000	62			0.060	5.681	12.2	OK
16.001	63			1.150	17.710	31.0	SURCHARGED
17.000	64			0.088	11.027	23.6	OK
17.001	65			1.788	13.032	24.0	FLOOD RISK
16.002	66			2.470	37.091	57.3	FLOOD
1.014	67			8.328	2538.239	48.3	FLOOD RISK
18.000	68			0.596	63.490	30.3	OK
18.001	69			80.290	86.224	44.8	SURCHARGED
18.002	70			5.853	119.178	46.1	SURCHARGED
19.000	71			1.842	53.456	91.2	SURCHARGED
20.000	72			1.090	13.376	25.0	SURCHARGED
20.001	73			7.005	13.378	34.3	SURCHARGED
19.001	74			12.288	71.177	81.8	SURCHARGED
19.002	75			2.339	87.887	96.6	SURCHARGED
19.003	76			3.488	87.815	95.4	SURCHARGED
21.000	77			3.277	13.033	20.9	FLOOD
21.001	78			1.890	24.393	32.6	FLOOD

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			1.479	28.069	34.1	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	30 minute 100 year Winter I+20%	49.950	49.156	0.896	0.000	1.49
18.004	81	30 minute 100 year Winter I+20%	49.450	49.011	0.911	0.000	1.54
22.000	82	15 minute 100 year Winter I+20%	49.800	49.142	-0.508	0.000	0.11
23.000	83	15 minute 100 year Winter I+20%	49.800	49.174	-0.476	0.000	0.16
22.001	84	30 minute 100 year Winter I+20%	49.600	48.948	-0.502	0.000	0.13
22.002	85	30 minute 100 year Winter I+20%	49.350	48.938	0.188	0.000	0.64
18.005	86	30 minute 100 year Winter I+20%	49.300	48.876	0.761	0.000	1.10
18.006	87	30 minute 100 year Winter I+20%	49.050	48.539	0.734	0.000	1.49
24.000	88	30 minute 100 year Winter I+20%	48.800	48.329	-0.471	0.000	0.08
24.001	89	30 minute 100 year Winter I+20%	48.950	48.323	0.573	0.000	1.69
18.007	90	15 minute 100 year Winter I+20%	49.000	48.341	0.656	0.000	2.24
18.008	91	15 minute 100 year Winter I+20%	48.800	48.156	0.556	0.000	0.87
18.009	92	15 minute 100 year Winter I+20%	48.400	47.920	0.795	0.000	0.85
18.010	93	15 minute 100 year Winter I+20%	47.800	47.669	1.069	0.000	1.83
25.000	94	15 minute 100 year Winter I+20%	49.500	49.503	1.203	3.516	2.64
26.000	95	15 minute 100 year Winter I+20%	49.500	49.190	0.895	0.000	1.11
26.001	96	15 minute 100 year Winter I+20%	49.400	49.013	0.868	0.000	1.62
25.001	97	15 minute 100 year Winter I+20%	49.150	48.732	0.632	0.000	0.67
25.002	98	15 minute 100 year Winter I+20%	48.700	48.471	0.971	0.000	1.01
18.011	99	15 minute 100 year Winter I+20%	47.500	47.500	0.970	0.022	0.93
18.012	100	15 minute 100 year Winter I+20%	47.200	47.021	1.046	0.000	3.75
27.000	101	15 minute 100 year Winter I+20%	48.950	48.818	1.068	0.000	2.06
27.001	102	15 minute 100 year Winter I+20%	48.450	47.941	0.416	0.000	0.94
27.002	103	15 minute 100 year Winter I+20%	47.450	47.036	0.511	0.000	1.04
18.013	104	15 minute 100 year Winter I+20%	47.200	46.491	0.481	0.000	2.60
28.000	105	30 minute 100 year Winter I+20%	49.550	49.550	1.200	0.299	0.79
29.000	106	30 minute 100 year Winter I+20%	49.450	49.454	1.204	3.855	1.31
28.001	107	30 minute 100 year Winter I+20%	49.550	49.430	1.344	0.000	1.43
28.002	108	30 minute 100 year Winter I+20%	49.650	49.271	1.305	0.000	2.25
28.003	109	60 minute 100 year Winter I+20%	49.300	49.198	1.286	0.000	0.73
30.000	110	15 minute 100 year Winter I+20%	49.500	49.412	1.112	0.000	2.26
30.001	111	15 minute 100 year Winter I+20%	49.350	48.555	0.442	0.000	1.08
28.004	112	30 minute 100 year Winter I+20%	49.300	48.319	0.507	0.000	2.47
28.005	113	30 minute 100 year Winter I+20%	48.700	47.590	-0.122	0.000	0.43
18.014	114	240 minute 100 year Winter I+20%	46.600	46.444	0.594	0.000	0.20
31.000	115	60 minute 100 year Winter I+20%	48.200	47.568	-0.631	0.000	0.01
31.001	116	60 minute 100 year Winter I+20%	47.900	47.568	-0.331	0.000	0.01
31.002	117	60 minute 100 year Winter I+20%	47.900	47.566	0.413	0.000	-2.61
31.003	118	15 minute 100 year Winter I+20%	48.100	48.099	1.019	0.001	0.47
32.000	119	30 minute 100 year Winter I+20%	48.700	48.221	0.861	0.000	1.20
32.001	120	15 minute 100 year Winter I+20%	48.250	48.167	1.073	0.000	1.64
31.004	121	15 minute 100 year Winter I+20%	48.200	48.129	1.119	0.000	1.53
31.005	122	15 minute 100 year Winter I+20%	48.000	47.906	1.036	0.000	1.91
33.000	123	15 minute 100 year Winter I+20%	47.400	47.401	0.376	1.006	0.27
31.006	124	15 minute 100 year Winter I+20%	47.400	47.400	0.675	0.268	2.32
31.007	125	15 minute 100 year Winter I+20%	47.300	47.145	0.471	0.000	2.47
31.008	126	15 minute 100 year Winter I+20%	46.660	46.579	-0.081	0.000	0.46
31.009	127	30 minute 100 year Winter I+20%	46.560	46.429	-0.046	0.000	0.99
18.015	128	480 minute 100 year Winter I+20%	45.800	45.680	0.180	0.000	0.05
1.015	129	1440 minute 100 year Winter I+20%	41.800	41.747	0.247	0.000	0.11

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			5.630	289.965	168.8	SURCHARGED
18.004	81			8.462	292.096	157.1	SURCHARGED
22.000	82			0.155	22.063	43.2	OK
23.000	83			0.192	13.886	26.1	OK
22.001	84			13.532	72.390	75.2	OK
22.002	85			31.618	72.388	99.6	SURCHARGED
18.005	86			6.641	381.675	201.5	SURCHARGED
18.006	87			5.599	387.506	205.6	SURCHARGED
24.000	88			0.367	16.368	16.9	OK
24.001	89			15.947	20.708	22.0	SURCHARGED
18.007	90			2.587	332.319	225.2	SURCHARGED
18.008	91			3.921	354.030	235.9	SURCHARGED
18.009	92			3.181	364.177	241.2	SURCHARGED
18.010	93			3.567	374.871	245.0	FLOOD RISK
25.000	94			5.018	26.731	39.6	FLOOD
26.000	95			1.262	21.384	36.8	SURCHARGED
26.001	96			2.465	32.412	53.4	SURCHARGED
25.001	97			2.432	81.196	118.0	SURCHARGED
25.002	98			2.593	108.929	164.1	FLOOD RISK
18.011	99			9.257	503.756	389.9	FLOOD
18.012	100			4.521	514.795	405.8	FLOOD RISK
27.000	101			1.371	17.709	31.9	FLOOD RISK
27.001	102			1.174	44.100	76.8	SURCHARGED
27.002	103			1.700	59.805	103.7	SURCHARGED
18.013	104			4.670	578.681	513.0	SURCHARGED
28.000	105			1.821	13.820	12.7	FLOOD
29.000	106			5.364	21.413	18.0	FLOOD
28.001	107			2.688	52.355	45.8	FLOOD RISK
28.002	108			2.749	71.723	66.7	SURCHARGED
28.003	109			38.936	81.339	20.4	FLOOD RISK
30.000	110			1.422	18.377	31.2	FLOOD RISK
30.001	111			1.139	20.381	32.1	SURCHARGED
28.004	112			13.687	77.596	45.6	SURCHARGED
28.005	113			18.366	60.147	44.8	OK
18.014	114			961.467	1127.390	46.9	FLOOD RISK
31.000	115			0.209	35.038	14.0	OK
31.001	116			43.719	31.737	9.6	OK
31.002	117			23.691	25.187	-13.5	SURCHARGED
31.003	118			2.010	11.456	14.4	FLOOD
32.000	119			30.726	76.061	48.0	SURCHARGED
32.001	120			3.024	61.390	50.9	FLOOD RISK
31.004	121			2.795	83.552	49.4	FLOOD RISK
31.005	122			2.627	93.020	62.1	FLOOD RISK
33.000	123			1.543	4.680	15.0	FLOOD
31.006	124			3.336	99.965	64.7	FLOOD
31.007	125			1.255	102.801	68.6	FLOOD RISK
31.008	126			0.999	108.628	77.2	FLOOD RISK*
31.009	127			1.447	133.013	77.6	FLOOD RISK*
18.015	128			509.711	1952.657	45.0	FLOOD RISK
1.015	129			1967.988	4972.626	61.3	FLOOD RISK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year+20%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	20

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 100 year Winter I+20%	49.600	48.823	-0.477	0.000	0.06
34.001	131	15 minute 100 year Winter I+20%	48.800	48.604	0.104	0.000	0.09
34.002	132	120 minute 100 year Winter I+20%	47.950	47.795	0.035	0.000	0.37
34.003	133	120 minute 100 year Winter I+20%	47.950	47.786	0.436	0.000	0.87
35.000	134	15 minute 100 year Winter I+20%	49.850	48.776	0.121	0.000	0.90
34.004	135	15 minute 100 year Winter I+20%	47.800	47.614	0.314	0.000	1.92
34.005	136	15 minute 100 year Winter I+20%	47.700	47.393	0.068	0.000	1.61
34.006	137	240 minute 100 year Winter I+20%	47.400	47.336	0.136	0.000	0.03
36.000	138	15 minute 100 year Winter I+20%	49.900	49.068	-0.532	0.000	0.04
36.001	139	30 minute 100 year Winter I+20%	49.350	48.996	-0.054	0.000	0.01
36.002	140	30 minute 100 year Winter I+20%	48.000	47.458	-0.092	0.000	0.22
37.000	141	15 minute 100 year Winter I+20%	47.400	46.270	-0.080	0.000	0.88
36.003	142	15 minute 100 year Winter I+20%	46.700	46.083	-0.157	0.000	0.45
36.004	143	15 minute 100 year Winter I+20%	46.650	45.681	0.101	0.000	1.04
38.000	144	15 minute 100 year Winter I+20%	47.600	45.692	-0.133	0.000	0.35
36.005	145	15 minute 100 year Winter I+20%	46.800	45.533	0.103	0.000	0.62
34.007	146	15 minute 100 year Winter I+20%	45.800	44.921	1.021	0.000	4.59
34.008	147	120 minute 100 year Winter I+20%	44.300	44.196	0.346	0.000	0.08
39.000	148	15 minute 100 year Winter I+20%	44.200	43.659	0.659	0.000	0.54
39.001	149	15 minute 100 year Winter I+20%	43.800	43.572	0.972	0.000	1.05
39.002	150	15 minute 100 year Winter I+20%	42.800	42.457	0.857	0.000	1.36
34.009	151	240 minute 100 year Winter I+20%	42.300	40.867	0.167	0.000	0.67
40.000	152	15 minute 100 year Winter I+20%	42.600	42.284	0.734	0.000	1.27
34.010	153	240 minute 100 year Winter I+20%	40.800	40.787	0.262	0.000	0.22
34.011	154	240 minute 100 year Winter I+20%	39.000	38.777	-0.148	0.000	0.26

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.100	19.831	32.3	OK
34.001	131			11.632	39.359	56.9	FLOOD RISK
34.002	132			14.207	116.305	33.8	FLOOD RISK
34.003	133			68.098	88.920	10.3	FLOOD RISK
35.000	134			0.386	37.088	75.4	SURCHARGED
34.004	135			2.023	79.269	114.9	FLOOD RISK
34.005	136			1.295	78.394	113.5	SURCHARGED
34.006	137			133.360	285.838	13.0	FLOOD RISK
36.000	138			0.071	22.443	46.1	OK
36.001	139			21.050	19.103	7.2	OK
36.002	140			0.999	21.961	9.4	OK
37.000	141			0.243	34.082	72.7	OK
36.003	142			0.451	59.696	90.7	OK
36.004	143			0.722	63.277	96.2	SURCHARGED
38.000	144			0.099	11.027	23.6	OK
36.005	145			2.032	98.253	160.4	SURCHARGED
34.007	146			3.578	142.629	180.2	SURCHARGED
34.008	147			124.603	304.057	26.9	FLOOD RISK
39.000	148			0.909	9.356	17.9	SURCHARGED
39.001	149			1.428	26.731	43.7	FLOOD RISK
39.002	150			1.373	35.085	57.0	SURCHARGED
34.009	151			0.920	587.022	39.6	SURCHARGED
40.000	152			0.994	23.051	41.6	SURCHARGED
34.010	153			104.344	577.112	40.0	FLOOD RISK
34.011	154			0.106	576.803	40.0	FLOOD RISK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+20%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	20

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 100 year Winter I+20%	46.800	45.602	-0.898	0.000	0.06
41.001	156	240 minute 100 year Winter I+20%	46.350	45.446	-0.604	0.000	0.01
41.002	157	240 minute 100 year Winter I+20%	46.100	45.447	0.472	0.000	0.20
41.003	158	120 minute 100 year Winter I+20%	46.250	45.444	0.519	0.000	0.10
42.000	159	15 minute 100 year Winter I+20%	47.800	47.086	-0.713	0.000	0.03
42.001	160	60 minute 100 year Winter I+20%	47.400	46.940	0.715	0.000	0.10
42.002	161	15 minute 100 year Winter I+20%	46.800	46.299	0.724	0.000	0.85
42.003	162	15 minute 100 year Winter I+20%	46.500	46.168	0.763	0.000	1.29
42.004	163	15 minute 100 year Winter I+20%	46.200	45.904	0.649	0.000	1.09
42.005	164	120 minute 100 year Winter I+20%	45.800	45.460	0.635	0.000	0.82
41.004	165	120 minute 100 year Winter I+20%	45.500	45.442	0.717	0.000	0.16
41.005	166	15 minute 100 year Winter I+20%	45.500	44.374	-0.151	0.000	0.24
41.006	167	15 minute 100 year Winter I+20%	45.000	43.965	-0.060	0.000	0.88
43.000	168	15 minute 100 year Winter I+20%	47.650	47.062	0.612	0.000	0.52
43.001	169	15 minute 100 year Winter I+20%	47.200	47.018	0.993	0.000	0.81
43.002	170	15 minute 100 year Winter I+20%	46.950	46.881	1.076	0.000	0.68
43.003	171	15 minute 100 year Winter I+20%	46.600	46.600	1.375	0.052	1.37
43.004	172	240 minute 100 year Winter I+20%	44.850	44.627	0.772	0.000	0.47
41.007	173	240 minute 100 year Winter I+20%	44.200	43.822	0.397	0.000	0.74
44.000	174	15 minute 100 year Winter I+20%	48.600	48.135	0.910	0.000	0.82
44.001	175	15 minute 100 year Winter I+20%	47.850	47.850	1.050	0.226	0.75
44.002	176	15 minute 100 year Winter I+20%	47.700	47.700	1.130	0.105	0.84
45.000	177	15 minute 100 year Winter I+20%	47.800	47.528	0.928	0.000	0.66
44.003	178	15 minute 100 year Winter I+20%	47.350	47.352	1.252	1.595	0.73
44.004	179	15 minute 100 year Winter I+20%	45.950	45.950	1.420	0.427	0.99
46.000	180	15 minute 100 year Winter I+20%	46.150	45.785	0.660	0.000	0.52

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+20%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.166	27.754	57.3	OK
41.001	156			16.646	62.179	6.2	OK
41.002	157			23.504	62.030	4.8	SURCHARGED
41.003	158			1.558	23.420	4.4	SURCHARGED
42.000	159			0.092	26.531	48.0	OK
42.001	160			42.138	43.081	6.9	SURCHARGED
42.002	161			2.365	39.148	35.1	SURCHARGED
42.003	162			1.966	52.258	57.3	SURCHARGED
42.004	163			1.579	63.489	76.8	SURCHARGED
42.005	164			1.679	151.704	31.1	SURCHARGED
41.004	165			85.191	127.619	9.9	FLOOD RISK
41.005	166			0.086	31.440	16.0	OK
41.006	167			0.294	47.816	54.1	OK
43.000	168			0.856	6.015	14.4	SURCHARGED
43.001	169			1.615	25.060	42.3	FLOOD RISK
43.002	170			2.119	42.435	68.3	FLOOD RISK
43.003	171			2.250	67.170	108.5	FLOOD
43.004	172			128.152	107.418	4.7	FLOOD RISK
41.007	173			49.542	369.125	15.9	SURCHARGED
44.000	174			1.278	20.043	33.9	SURCHARGED
44.001	175			3.738	56.130	89.0	FLOOD
44.002	176			2.623	70.498	112.9	FLOOD
45.000	177			1.214	7.017	16.4	SURCHARGED
44.003	178			5.459	98.231	143.7	FLOOD
44.004	179			5.256	114.600	164.0	FLOOD
46.000	180			0.995	26.723	46.0	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+20%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	15 minute 100 year Winter I+20%	45.800	45.486	1.486	0.000	0.97
44.006	182	30 minute 100 year Winter I+20%	45.750	45.321	1.521	0.000	2.75
44.007	183	30 minute 100 year Winter I+20%	45.300	44.950	1.250	0.000	1.21
47.000	184	15 minute 100 year Winter I+20%	45.800	45.801	0.876	0.787	1.88
47.001	185	15 minute 100 year Winter I+20%	45.300	45.306	0.446	5.797	1.02
47.002	186	15 minute 100 year Winter I+20%	44.200	44.200	0.480	0.133	3.30
47.003	187	360 minute 100 year Winter I+20%	44.100	43.842	0.322	0.000	0.59
44.008	188	60 minute 100 year Winter I+20%	44.100	43.870	0.400	0.000	3.86
41.008	189	240 minute 100 year Winter I+20%	44.000	43.786	0.461	0.000	1.32

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			5.728	149.677	217.9	SURCHARGED
44.006	182			3.782	213.562	212.7	SURCHARGED
44.007	183			101.798	202.008	108.6	SURCHARGED
47.000	184			1.941	16.374	26.8	FLOOD
47.001	185			6.904	29.406	29.4	FLOOD
47.002	186			2.435	32.068	32.5	FLOOD
47.003	187			82.433	68.553	3.3	SURCHARGED
44.008	188			70.184	202.470	62.9	FLOOD RISK
41.008	189			183.309	634.732	31.7	FLOOD RISK

1 in 100 (+40%climate change) year Results

Northern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	26
Number of Online Controls	11	Number of Time/Area Diagrams	0
Number of Offline Controls	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	1	30 minute 100 year Winter I+40%	51.500	51.169	-0.181	0.000	0.04
1.001	2	30 minute 100 year Winter I+40%	51.150	51.154	1.154	4.379	0.89
2.000	3	30 minute 100 year Winter I+40%	51.900	51.125	-0.625	0.000	0.03
1.002	4	30 minute 100 year Winter I+40%	51.450	51.121	1.261	0.000	0.88
1.003	5	15 minute 100 year Winter I+40%	51.550	51.373	1.588	0.000	1.10
1.004	6	15 minute 100 year Winter I+40%	51.600	51.320	1.645	0.000	1.52
1.005	7	15 minute 100 year Winter I+40%	51.450	51.249	1.619	0.000	1.66
1.006	8	15 minute 100 year Winter I+40%	51.350	51.069	1.504	0.000	1.82
3.000	9	15 minute 100 year Winter I+40%	50.600	50.602	1.202	1.821	2.00
1.007	10	15 minute 100 year Winter I+40%	50.450	50.453	0.903	3.398	0.71
4.000	11	15 minute 100 year Winter I+40%	51.200	51.207	1.207	6.528	2.52
4.001	12	15 minute 100 year Winter I+40%	51.100	50.863	0.843	0.000	0.71
5.000	13	15 minute 100 year Winter I+40%	51.300	50.824	0.649	0.000	0.27
4.002	14	15 minute 100 year Winter I+40%	51.200	50.790	0.830	0.000	1.27
4.003	15	15 minute 100 year Winter I+40%	51.000	50.719	0.809	0.000	1.38
4.004	16	15 minute 100 year Winter I+40%	51.000	50.619	0.769	0.000	1.52
4.005	17	15 minute 100 year Winter I+40%	51.000	50.513	0.713	0.000	1.53
4.006	18	15 minute 100 year Winter I+40%	51.000	50.377	0.637	0.000	1.75
4.007	19	15 minute 100 year Winter I+40%	50.850	50.044	0.414	0.000	1.27
6.000	20	240 minute 100 year Winter I+40%	50.325	50.010	-0.165	0.000	0.02
6.001	21	240 minute 100 year Winter I+40%	50.250	50.010	0.410	0.000	0.36
1.008	22	240 minute 100 year Winter I+40%	50.000	50.003	0.778	2.452	0.55
7.000	23	15 minute 100 year Winter I+40%	50.100	50.101	0.992	1.016	2.19
7.001	24	30 minute 100 year Winter I+40%	49.900	49.882	0.841	0.000	1.72
8.000	25	15 minute 100 year Winter I+40%	50.200	50.204	1.042	3.787	1.58
8.001	26	15 minute 100 year Winter I+40%	50.100	50.073	1.061	0.000	2.39

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1			0.808	40.256	41.7	OK
1.001	2			63.171	48.559	52.2	FLOOD
2.000	3			0.418	55.226	44.0	OK
1.002	4			84.233	116.946	49.9	SURCHARGED
1.003	5			3.601	151.458	64.6	FLOOD RISK
1.004	6			4.411	165.392	80.3	SURCHARGED
1.005	7			3.028	175.489	91.9	FLOOD RISK
1.006	8			3.338	182.541	108.2	SURCHARGED
3.000	9			3.342	12.807	27.0	FLOOD
1.007	10			9.061	206.966	133.2	FLOOD
4.000	11			8.035	26.900	34.6	FLOOD
4.001	12			1.718	33.481	39.6	FLOOD RISK
5.000	13			0.983	8.187	14.0	SURCHARGED
4.002	14			3.060	53.363	70.2	SURCHARGED
4.003	15			2.133	60.723	78.8	SURCHARGED
4.004	16			2.260	66.669	85.6	SURCHARGED
4.005	17			1.972	70.113	89.2	SURCHARGED
4.006	18			2.058	79.375	103.0	SURCHARGED
4.007	19			3.025	82.506	105.7	SURCHARGED
6.000	20			0.514	47.535	7.6	OK
6.001	21			31.056	58.492	9.6	SURCHARGED
1.008	22			528.035	466.283	25.5	FLOOD
7.000	23			2.297	16.853	28.1	FLOOD
7.001	24			1.275	21.148	23.9	FLOOD RISK
8.000	25			5.125	16.608	21.8	FLOOD
8.001	26			1.734	23.491	32.1	FLOOD RISK

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
9.000	27	15 minute 100 year Winter I+40%	49.950	49.957	0.793	7.392	1.48
9.001	28	15 minute 100 year Winter I+40%	49.900	49.901	0.850	1.118	2.68
9.002	29	360 minute 100 year Winter I+40%	49.850	49.703	0.643	0.000	0.28
8.002	30	360 minute 100 year Winter I+40%	49.950	49.696	0.721	0.000	0.54
1.009	31	240 minute 100 year Winter I+40%	49.700	49.688	0.838	0.000	1.13
1.010	32	240 minute 100 year Winter I+40%	49.300	48.215	-0.035	0.000	0.95
10.000	33	15 minute 100 year Winter I+40%	50.900	50.907	1.207	7.212	2.08
10.001	34	15 minute 100 year Winter I+40%	50.800	50.809	1.209	9.082	0.48
10.002	35	15 minute 100 year Winter I+40%	50.300	50.300	1.200	0.000	1.34
10.003	36	15 minute 100 year Winter I+40%	50.550	50.550	1.610	0.187	1.73
10.004	37	30 minute 100 year Winter I+40%	50.350	50.350	1.510	0.056	1.21
10.005	38	30 minute 100 year Winter I+40%	50.250	50.255	1.525	4.893	1.00
11.000	39	15 minute 100 year Winter I+40%	51.150	51.022	1.022	0.000	1.09
10.006	40	15 minute 100 year Winter I+40%	50.550	49.418	0.758	0.000	0.70
10.007	41	15 minute 100 year Winter I+40%	49.300	49.190	1.090	0.000	0.55
10.008	42	15 minute 100 year Winter I+40%	48.350	48.350	1.200	0.000	1.63
10.009	43	15 minute 100 year Winter I+40%	48.800	48.591	1.571	0.000	2.40
10.010	44	15 minute 100 year Winter I+40%	49.000	48.310	1.340	0.000	2.08
10.011	45	15 minute 100 year Winter I+40%	49.350	48.050	1.140	0.000	2.48
10.012	46	15 minute 100 year Winter I+40%	48.900	47.672	0.822	0.000	2.97
12.000	47	60 minute 100 year Winter I+40%	47.850	47.095	0.295	0.000	0.53
12.001	48	60 minute 100 year Winter I+40%	47.500	47.083	0.433	0.000	0.88
1.011	49	60 minute 100 year Winter I+40%	47.100	47.070	0.295	0.000	0.25
13.000	50	15 minute 100 year Winter I+40%	48.750	47.903	0.353	0.000	0.73
13.001	51	15 minute 100 year Winter I+40%	46.850	46.851	1.201	0.521	4.19
1.012	52	30 minute 100 year Winter I+40%	46.500	45.369	-0.208	0.000	0.41
1.013	53	60 minute 100 year Winter I+40%	44.600	43.334	-0.218	0.000	0.37
14.000	54	15 minute 100 year Winter I+40%	46.000	46.004	1.254	4.028	1.37
14.001	55	15 minute 100 year Winter I+40%	45.000	43.781	0.381	0.000	1.18
15.000	56	15 minute 100 year Winter I+40%	46.950	45.456	-0.094	0.000	0.30
15.001	57	15 minute 100 year Winter I+40%	46.300	43.879	-0.146	0.000	0.26
14.002	58	15 minute 100 year Winter I+40%	45.500	43.639	0.339	0.000	1.04
14.003	59	15 minute 100 year Winter I+40%	44.200	43.000	0.300	0.000	1.04
14.004	60	15 minute 100 year Winter I+40%	43.100	42.121	0.071	0.000	1.08
14.005	61	30 minute 100 year Winter I+40%	43.700	41.947	0.047	0.000	0.58
16.000	62	15 minute 100 year Winter I+40%	46.500	45.387	0.087	0.000	0.36
16.001	63	15 minute 100 year Winter I+40%	45.500	45.281	0.981	0.000	0.89
17.000	64	15 minute 100 year Winter I+40%	46.500	45.339	0.039	0.000	0.65
17.001	65	15 minute 100 year Winter I+40%	44.650	44.598	1.198	0.000	0.97
16.002	66	15 minute 100 year Winter I+40%	44.300	44.304	1.204	3.579	1.31
1.014	67	960 minute 100 year Winter I+40%	41.800	41.778	0.078	0.000	0.31
18.000	68	30 minute 100 year Winter I+40%	50.100	49.680	-0.270	0.000	0.03
18.001	69	30 minute 100 year Winter I+40%	49.700	49.667	1.017	0.000	2.00
18.002	70	30 minute 100 year Winter I+40%	49.800	49.532	1.022	0.000	1.39
19.000	71	15 minute 100 year Winter I+40%	50.100	50.052	1.002	0.000	0.54
20.000	72	15 minute 100 year Winter I+40%	50.100	49.963	0.988	0.000	0.78
20.001	73	15 minute 100 year Winter I+40%	50.000	49.921	1.046	0.000	-0.60
19.001	74	15 minute 100 year Winter I+40%	50.000	49.912	1.462	0.000	1.11
19.002	75	15 minute 100 year Winter I+40%	50.050	49.789	1.439	0.000	2.38
19.003	76	30 minute 100 year Winter I+40%	50.050	49.449	1.159	0.000	1.76
21.000	77	15 minute 100 year Winter I+40%	50.050	50.055	1.205	4.973	1.76
21.001	78	15 minute 100 year Winter I+40%	50.050	50.050	1.300	0.268	2.43
21.002	79	15 minute 100 year Winter I+40%	50.000	49.663	1.033	0.000	1.05

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
9.000	27			8.437	17.253	20.0	FLOOD
9.001	28			2.514	29.493	34.4	FLOOD
9.002	29			1.131	79.718	9.1	FLOOD RISK
8.002	30			2.002	136.740	15.7	SURCHARGED
1.009	31			111.086	549.501	30.2	FLOOD RISK
1.010	32			0.152	549.066	30.2	OK
10.000	33			8.726	23.389	30.1	FLOOD
10.001	34			10.972	52.641	59.7	FLOOD
10.002	35			4.551	77.194	80.1	FLOOD RISK*
10.003	36			5.656	97.073	115.3	FLOOD
10.004	37			4.656	162.032	148.7	FLOOD
10.005	38			29.334	180.486	99.3	FLOOD
11.000	39			1.320	24.949	41.4	FLOOD RISK
10.006	40			5.981	198.839	202.5	SURCHARGED
10.007	41			6.038	224.957	228.7	FLOOD RISK
10.008	42			6.352	241.714	250.8	FLOOD RISK*
10.009	43			6.027	249.904	258.6	FLOOD RISK
10.010	44			4.764	249.887	254.8	SURCHARGED
10.011	45			4.184	266.987	274.3	SURCHARGED
10.012	46			4.241	268.983	269.0	SURCHARGED
12.000	47			0.498	22.961	14.6	SURCHARGED
12.001	48			1.407	37.095	23.3	SURCHARGED
1.011	49	70.9	85.168	185.287	471.512	108.0	FLOOD RISK
13.000	50			0.563	15.204	28.9	SURCHARGED
13.001	51			2.463	30.017	54.1	FLOOD
1.012	52			0.282	337.827	169.3	OK
1.013	53			0.277	624.885	186.7	OK
14.000	54			5.596	35.474	50.1	FLOOD
14.001	55			0.962	57.696	90.4	SURCHARGED*
15.000	56			0.057	8.187	17.5	OK
15.001	57			0.084	14.425	31.7	OK
14.002	58			1.752	83.816	143.8	SURCHARGED
14.003	59			2.329	103.307	178.1	SURCHARGED
14.004	60			1.588	120.457	208.2	SURCHARGED
14.005	61			5.864	156.474	174.4	SURCHARGED
16.000	62			0.263	6.628	13.8	SURCHARGED
16.001	63			1.578	20.661	35.9	FLOOD RISK
17.000	64			0.209	12.865	26.3	SURCHARGED
17.001	65			1.915	15.214	29.3	FLOOD RISK
16.002	66			5.556	43.295	57.6	FLOOD
1.014	67			8.646	2734.558	74.7	FLOOD RISK
18.000	68			0.877	64.517	33.7	OK
18.001	69			98.606	86.656	46.7	FLOOD RISK
18.002	70			6.214	124.923	48.0	SURCHARGED
19.000	71			2.293	62.370	109.2	FLOOD RISK
20.000	72			1.366	15.582	26.5	FLOOD RISK
20.001	73			12.340	15.585	-45.5	FLOOD RISK
19.001	74			12.710	83.023	90.0	FLOOD RISK
19.002	75			2.600	102.475	106.7	SURCHARGED
19.003	76			4.637	132.655	96.7	SURCHARGED
21.000	77			6.490	15.202	23.3	FLOOD
21.001	78			2.149	28.457	33.9	FLOOD

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
21.002	79			1.606	32.745	34.0	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
18.003	80	30 minute 100 year Winter I+40%	49.950	49.314	1.054	0.000	1.62
18.004	81	30 minute 100 year Winter I+40%	49.450	49.155	1.055	0.000	1.62
22.000	82	15 minute 100 year Winter I+40%	49.800	49.156	-0.494	0.000	0.13
23.000	83	15 minute 100 year Winter I+40%	49.800	49.192	-0.458	0.000	0.17
22.001	84	30 minute 100 year Winter I+40%	49.600	49.047	-0.403	0.000	0.16
22.002	85	30 minute 100 year Winter I+40%	49.350	49.038	0.288	0.000	0.70
18.005	86	30 minute 100 year Winter I+40%	49.300	49.006	0.891	0.000	1.11
18.006	87	30 minute 100 year Winter I+40%	49.050	48.687	0.882	0.000	1.52
24.000	88	30 minute 100 year Winter I+40%	48.800	48.481	-0.319	0.000	0.08
24.001	89	30 minute 100 year Winter I+40%	48.950	48.476	0.726	0.000	1.91
18.007	90	30 minute 100 year Winter I+40%	49.000	48.463	0.778	0.000	2.30
18.008	91	15 minute 100 year Winter I+40%	48.800	48.231	0.631	0.000	0.89
18.009	92	30 minute 100 year Summer I+40%	48.400	47.991	0.866	0.000	0.85
18.010	93	15 minute 100 year Winter I+40%	47.800	47.710	1.110	0.000	1.85
25.000	94	15 minute 100 year Winter I+40%	49.500	49.508	1.208	8.083	2.65
26.000	95	15 minute 100 year Winter I+40%	49.500	49.501	1.206	1.393	1.49
26.001	96	15 minute 100 year Winter I+40%	49.400	49.376	1.231	0.000	1.90
25.001	97	15 minute 100 year Winter I+40%	49.150	49.028	0.928	0.000	0.72
25.002	98	15 minute 100 year Winter I+40%	48.700	48.701	1.201	0.805	1.11
18.011	99	15 minute 100 year Winter I+40%	47.500	47.508	0.978	8.004	0.96
18.012	100	15 minute 100 year Winter I+40%	47.200	47.063	1.088	0.000	3.83
27.000	101	15 minute 100 year Winter I+40%	48.950	48.952	1.202	1.757	2.38
27.001	102	15 minute 100 year Winter I+40%	48.450	48.343	0.818	0.000	1.03
27.002	103	15 minute 100 year Winter I+40%	47.450	47.273	0.748	0.000	1.17
18.013	104	240 minute 100 year Winter I+40%	47.200	46.612	0.602	0.000	1.24
28.000	105	15 minute 100 year Winter I+40%	49.550	49.552	1.202	2.026	0.90
29.000	106	30 minute 100 year Winter I+40%	49.450	49.459	1.209	8.839	1.26
28.001	107	30 minute 100 year Winter I+40%	49.550	49.468	1.382	0.000	1.50
28.002	108	30 minute 100 year Winter I+40%	49.650	49.331	1.365	0.000	2.52
28.003	109	60 minute 100 year Winter I+40%	49.300	49.249	1.337	0.000	0.75
30.000	110	15 minute 100 year Winter I+40%	49.500	49.501	1.201	1.291	2.36
30.001	111	30 minute 100 year Winter I+40%	49.350	48.722	0.609	0.000	1.04
28.004	112	30 minute 100 year Winter I+40%	49.300	48.420	0.608	0.000	2.66
28.005	113	30 minute 100 year Winter I+40%	48.700	47.595	-0.117	0.000	0.47
18.014	114	240 minute 100 year Winter I+40%	46.600	46.599	0.749	0.000	0.20
31.000	115	60 minute 100 year Winter I+40%	48.200	47.638	-0.561	0.000	0.01
31.001	116	60 minute 100 year Winter I+40%	47.900	47.638	-0.261	0.000	0.01
31.002	117	60 minute 100 year Winter I+40%	47.900	47.631	0.478	0.000	-2.74
31.003	118	15 minute 100 year Winter I+40%	48.100	48.101	1.021	0.720	-0.52
32.000	119	30 minute 100 year Winter I+40%	48.700	48.263	0.903	0.000	1.22
32.001	120	15 minute 100 year Summer I+40%	48.250	48.190	1.096	0.000	1.64
31.004	121	15 minute 100 year Summer I+40%	48.200	48.164	1.154	0.000	1.54
31.005	122	15 minute 100 year Winter I+40%	48.000	48.000	1.130	0.120	2.00
33.000	123	15 minute 100 year Winter I+40%	47.400	47.402	0.377	2.122	0.36
31.006	124	15 minute 100 year Winter I+40%	47.400	47.401	0.676	0.932	2.35
31.007	125	15 minute 100 year Winter I+40%	47.300	47.168	0.494	0.000	2.49
31.008	126	15 minute 100 year Winter I+40%	46.660	46.584	-0.076	0.000	0.49
31.009	127	30 minute 100 year Winter I+40%	46.560	46.455	-0.020	0.000	1.00
18.015	128	960 minute 100 year Winter I+40%	45.800	45.765	0.265	0.000	0.05
1.015	129	960 minute 100 year Winter I+40%	41.800	41.772	0.272	0.000	0.12

Summary of Critical Results by Maximum Level (Rank 1) for north - 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
18.003	80			5.910	324.174	183.1	SURCHARGED
18.004	81			12.168	326.733	165.0	SURCHARGED
22.000	82			0.170	25.790	48.9	OK
23.000	83			0.211	16.226	27.3	OK
22.001	84			23.597	84.611	89.7	OK
22.002	85			40.301	84.600	108.7	SURCHARGED
18.005	86			6.871	431.444	203.1	SURCHARGED
18.006	87			8.936	438.338	210.6	SURCHARGED
24.000	88			0.538	19.122	18.6	OK
24.001	89			21.015	24.186	24.9	SURCHARGED
18.007	90			2.762	461.048	231.3	SURCHARGED
18.008	91			4.028	405.391	239.8	SURCHARGED
18.009	92			3.283	462.187	240.0	SURCHARGED
18.010	93			3.626	428.999	247.7	FLOOD RISK
25.000	94			9.601	31.186	39.8	FLOOD
26.000	95			3.005	24.949	49.3	FLOOD
26.001	96			2.875	37.810	62.6	FLOOD RISK
25.001	97			2.766	94.725	126.6	FLOOD RISK
25.002	98			3.649	127.080	179.8	FLOOD
18.011	99			17.225	579.037	405.0	FLOOD
18.012	100			4.581	591.388	414.6	FLOOD RISK
27.000	101			3.277	20.660	36.8	FLOOD
27.001	102			1.628	51.451	84.1	FLOOD RISK
27.002	103			2.301	69.773	116.2	FLOOD RISK
18.013	104			4.884	1498.950	244.1	SURCHARGED
28.000	105			3.545	12.475	14.5	FLOOD
29.000	106			10.361	24.562	17.3	FLOOD
28.001	107			2.731	60.011	48.1	FLOOD RISK
28.002	108			2.817	82.530	74.6	SURCHARGED
28.003	109			43.954	90.174	21.0	FLOOD RISK
30.000	110			2.808	21.440	32.6	FLOOD
30.001	111			1.328	30.889	31.0	SURCHARGED
28.004	112			15.018	85.583	49.2	SURCHARGED
28.005	113			18.504	67.887	48.9	OK
18.014	114			1177.875	1145.414	46.9	FLOOD RISK
31.000	115			0.288	36.213	14.0	OK
31.001	116			52.897	30.661	10.4	OK
31.002	117			26.471	22.790	-14.2	SURCHARGED
31.003	118			2.720	9.983	-15.8	FLOOD
32.000	119			43.484	89.586	48.8	SURCHARGED
32.001	120			3.050	64.162	51.1	FLOOD RISK
31.004	121			2.835	86.378	49.7	FLOOD RISK
31.005	122			2.853	106.080	64.9	FLOOD
33.000	123			2.782	5.455	19.6	FLOOD
31.006	124			4.021	114.223	65.6	FLOOD
31.007	125			1.281	117.567	69.3	FLOOD RISK
31.008	126			1.017	124.414	81.2	FLOOD RISK*
31.009	127			1.825	152.426	78.2	FLOOD RISK*
18.015	128			604.283	2718.052	45.0	FLOOD RISK
1.015	129			2092.968	4580.355	66.5	FLOOD RISK

North-western Parcel

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year+40%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	8
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
34.000	130	15 minute 100 year Winter I+40%	49.600	48.832	-0.468	0.000	0.07
34.001	131	15 minute 100 year Winter I+40%	48.800	48.709	0.209	0.000	0.10
34.002	132	60 minute 100 year Winter I+40%	47.950	47.954	0.194	4.539	0.65
34.003	133	120 minute 100 year Winter I+40%	47.950	47.950	0.600	0.533	0.96
35.000	134	15 minute 100 year Winter I+40%	49.850	49.193	0.538	0.000	1.01
34.004	135	15 minute 100 year Winter I+40%	47.800	47.701	0.401	0.000	2.15
34.005	136	15 minute 100 year Winter I+40%	47.700	47.425	0.100	0.000	1.80
34.006	137	240 minute 100 year Winter I+40%	47.400	47.412	0.212	4.944	0.03
36.000	138	15 minute 100 year Winter I+40%	49.900	49.074	-0.526	0.000	0.04
36.001	139	60 minute 100 year Winter I+40%	49.350	49.039	-0.011	0.000	0.01
36.002	140	30 minute 100 year Winter I+40%	48.000	47.481	-0.069	0.000	0.23
37.000	141	15 minute 100 year Winter I+40%	47.400	46.349	-0.001	0.000	1.00
36.003	142	15 minute 100 year Winter I+40%	46.700	46.234	-0.006	0.000	0.51
36.004	143	15 minute 100 year Winter I+40%	46.650	46.040	0.460	0.000	1.17
38.000	144	15 minute 100 year Winter I+40%	47.600	45.953	0.128	0.000	0.38
36.005	145	15 minute 100 year Winter I+40%	46.800	45.888	0.458	0.000	0.68
34.007	146	15 minute 100 year Winter I+40%	45.800	45.149	1.249	0.000	5.02
34.008	147	120 minute 100 year Winter I+40%	44.300	44.288	0.438	0.000	0.08
39.000	148	15 minute 100 year Winter I+40%	44.200	43.998	0.998	0.000	0.64
39.001	149	15 minute 100 year Winter I+40%	43.800	43.801	1.201	1.371	1.14
39.002	150	15 minute 100 year Winter I+40%	42.800	42.736	1.136	0.000	1.45
34.009	151	120 minute 100 year Winter I+40%	42.300	40.889	0.189	0.000	0.87
40.000	152	15 minute 100 year Winter I+40%	42.600	42.600	1.050	0.409	1.38
34.010	153	120 minute 100 year Winter I+40%	40.800	40.808	0.283	2.153	0.25
34.011	154	120 minute 100 year Winter I+40%	39.000	38.782	-0.143	0.000	0.29

Summary of Critical Results by Maximum Level (Rank 1) for northwest - 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130			0.110	23.181	37.8	OK
34.001	131			14.950	45.729	64.0	FLOOD RISK
34.002	132			25.759	108.395	59.3	FLOOD
34.003	133			71.279	98.297	11.3	FLOOD
35.000	134			0.857	43.272	85.1	SURCHARGED
34.004	135			2.250	90.864	129.0	FLOOD RISK
34.005	136			1.340	89.764	126.7	SURCHARGED
34.006	137			163.411	310.966	13.1	FLOOD
36.000	138			0.078	26.174	52.6	OK
36.001	139			25.642	39.462	7.6	OK
36.002	140			1.220	23.815	10.1	OK
37.000	141			0.333	39.762	83.0	OK
36.003	142			1.330	68.050	102.8	OK
36.004	143			1.510	72.232	107.7	SURCHARGED
38.000	144			0.394	12.865	25.7	SURCHARGED
36.005	145			2.839	113.037	176.0	SURCHARGED
34.007	146			4.201	158.322	197.1	SURCHARGED
34.008	147			148.950	313.130	26.8	FLOOD RISK
39.000	148			1.293	10.915	21.0	FLOOD RISK
39.001	149			3.056	31.186	47.6	FLOOD
39.002	150			1.707	40.942	60.9	FLOOD RISK
34.009	151			0.971	387.748	51.5	SURCHARGED
40.000	152			1.760	26.894	45.2	FLOOD
34.010	153			109.994	355.216	44.8	FLOOD
34.011	154			0.113	354.542	44.8	FLOOD RISK

Southern Parcel

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+40%CC

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	7	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	26.250	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	240.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
41.000	155	15 minute 100 year Winter I+40%	46.800	45.617	-0.883	0.000	0.07
41.001	156	240 minute 100 year Winter I+40%	46.350	45.537	-0.513	0.000	0.01
41.002	157	240 minute 100 year Winter I+40%	46.100	45.537	0.562	0.000	0.20
41.003	158	240 minute 100 year Winter I+40%	46.250	45.535	0.610	0.000	0.09
42.000	159	15 minute 100 year Winter I+40%	47.800	47.094	-0.705	0.000	0.03
42.001	160	60 minute 100 year Winter I+40%	47.400	46.985	0.760	0.000	0.10
42.002	161	15 minute 100 year Winter I+40%	46.800	46.687	1.112	0.000	0.97
42.003	162	15 minute 100 year Winter I+40%	46.500	46.500	1.095	0.201	1.46
42.004	163	15 minute 100 year Winter I+40%	46.200	46.200	0.945	0.058	1.24
42.005	164	15 minute 100 year Winter I+40%	45.800	45.553	0.728	0.000	2.27
41.004	165	240 minute 100 year Winter I+40%	45.500	45.532	0.807	5.905	0.16
41.005	166	15 minute 100 year Summer I+40%	45.500	44.376	-0.149	0.000	0.25
41.006	167	15 minute 100 year Summer I+40%	45.000	43.994	-0.031	0.000	0.99
43.000	168	15 minute 100 year Winter I+40%	47.650	47.330	0.880	0.000	0.51
43.001	169	15 minute 100 year Winter I+40%	47.200	47.200	1.175	0.254	1.04
43.002	170	15 minute 100 year Winter I+40%	46.950	46.952	1.147	1.572	0.77
43.003	171	15 minute 100 year Winter I+40%	46.600	46.604	1.379	3.558	1.39
43.004	172	240 minute 100 year Winter I+40%	44.850	44.786	0.931	0.000	0.49
41.007	173	240 minute 100 year Winter I+40%	44.200	43.896	0.471	0.000	0.78
44.000	174	15 minute 100 year Winter I+40%	48.600	48.316	1.091	0.000	1.07
44.001	175	15 minute 100 year Winter I+40%	47.850	47.854	1.054	3.624	0.81
44.002	176	15 minute 100 year Winter I+40%	47.700	47.702	1.132	1.904	0.86
45.000	177	15 minute 100 year Winter I+40%	47.800	47.615	1.015	0.000	0.67
44.003	178	15 minute 100 year Winter I+40%	47.350	47.356	1.256	6.046	0.73
44.004	179	30 minute 100 year Winter I+40%	45.950	45.958	1.428	8.171	0.93
46.000	180	15 minute 100 year Winter I+40%	46.150	46.114	0.989	0.000	0.65

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+40%CC

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155			0.183	31.726	66.8	OK
41.001	156			23.334	66.814	6.1	OK
41.002	157			27.397	62.699	4.8	SURCHARGED
41.003	158			1.660	61.478	4.0	SURCHARGED
42.000	159			0.101	28.006	45.7	OK
42.001	160			51.821	44.436	7.1	SURCHARGED
42.002	161			2.803	42.149	39.8	FLOOD RISK
42.003	162			2.526	57.267	64.7	FLOOD
42.004	163			1.972	70.263	87.3	FLOOD
42.005	164			1.785	68.724	86.5	SURCHARGED
41.004	165			101.553	258.451	10.1	FLOOD
41.005	166			0.089	31.761	17.1	OK
41.006	167			0.367	48.828	60.9	OK
43.000	168			1.159	7.017	14.3	SURCHARGED
43.001	169			2.074	29.237	54.1	FLOOD
43.002	170			3.770	49.530	78.2	FLOOD
43.003	171			5.743	78.369	109.6	FLOOD
43.004	172			153.869	115.209	4.9	FLOOD RISK
41.007	173			55.340	387.967	16.7	SURCHARGED
44.000	174			1.482	23.385	44.0	SURCHARGED
44.001	175			7.139	65.486	95.8	FLOOD
44.002	176			4.423	82.270	115.3	FLOOD
45.000	177			1.312	8.186	16.6	FLOOD RISK
44.003	178			9.922	114.625	143.8	FLOOD
44.004	179			12.922	173.684	154.3	FLOOD
46.000	180			1.368	31.180	57.6	FLOOD RISK

Summary of Critical Results by Maximum Level (Rank 1) for southern- 1in 100 year+40%CC

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
44.005	181	30 minute 100 year Winter I+40%	45.800	45.632	1.632	0.000	0.92
44.006	182	30 minute 100 year Winter I+40%	45.750	45.483	1.683	0.000	2.97
44.007	183	30 minute 100 year Winter I+40%	45.300	45.174	1.474	0.000	1.28
47.000	184	15 minute 100 year Winter I+40%	45.800	45.802	0.877	2.229	1.88
47.001	185	15 minute 100 year Winter I+40%	45.300	45.308	0.448	8.411	1.03
47.002	186	15 minute 100 year Winter I+40%	44.200	44.200	0.480	0.415	3.30
47.003	187	240 minute 100 year Winter I+40%	44.100	43.923	0.403	0.000	-0.68
44.008	188	60 minute 100 year Winter I+40%	44.100	43.966	0.496	0.000	4.00
41.008	189	240 minute 100 year Winter I+40%	44.000	43.858	0.533	0.000	1.42

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
44.005	181			5.986	226.427	205.2	FLOOD RISK
44.006	182			4.068	248.478	229.6	SURCHARGED
44.007	183			116.740	232.601	115.6	FLOOD RISK
47.000	184			3.380	19.097	26.8	FLOOD
47.001	185			9.559	34.301	29.5	FLOOD
47.002	186			2.716	37.320	32.5	FLOOD
47.003	187			96.997	36.324	-3.8	FLOOD RISK
44.008	188			85.182	231.746	65.2	FLOOD RISK
41.008	189			210.557	696.040	34.1	FLOOD RISK

Run-off Volume Assessment
(6 hour, 1 in 100 year Results)

Northern Parcel

Summary of Results for 360 minute 100 year Winter (north)

Margin for Flood Risk Warning (mm) 240.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

PN	US/MH Name	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
1.000	1	51.500	50.485	0.000		0.034	74.036	8.7	OK
1.001	2	51.150	50.105	0.000		7.621	123.490	12.9	SURCHARGED
2.000	3	51.900	50.786	0.000		0.035	83.017	9.8	OK
1.002	4	51.450	50.089	0.000		4.817	246.779	25.9	SURCHARGED
1.003	5	51.550	49.919	0.000		1.957	304.245	31.8	SURCHARGED
1.004	6	51.600	49.891	0.000		2.794	333.984	34.7	SURCHARGED
1.005	7	51.450	49.871	0.000		1.470	355.095	36.9	SURCHARGED
1.006	8	51.350	49.849	0.000		1.959	373.621	39.1	SURCHARGED
3.000	9	50.600	49.824	0.000		0.643	23.103	2.6	SURCHARGED
1.007	10	50.450	49.820	0.000		4.790	427.123	44.5	SURCHARGED
4.000	11	51.200	49.915	0.000		0.067	45.549	5.3	OK
4.001	12	51.100	49.807	0.000		0.226	56.723	6.6	OK
5.000	13	51.300	49.976	0.000		0.024	13.860	1.6	OK
4.002	14	51.200	49.806	0.000		0.593	90.380	10.5	OK
4.003	15	51.000	49.803	0.000		0.687	102.928	12.0	OK
4.004	16	51.000	49.800	0.000		1.066	113.488	13.2	OK
4.005	17	51.000	49.798	0.000		1.094	120.115	13.9	OK
4.006	18	51.000	49.795	0.000		1.371	137.318	15.6	SURCHARGED
4.007	19	50.850	49.791	0.000		2.738	146.570	15.7	SURCHARGED
6.000	20	50.325	49.790	0.000		0.265	41.041	4.7	OK
6.001	21	50.250	49.790	0.000		17.540	54.902	6.1	SURCHARGED
1.008	22	50.000	49.784	0.000		370.610	627.694	15.9	FLOOD RISK
7.000	23	50.100	49.611	0.000		0.732	30.367	3.3	SURCHARGED
7.001	24	49.900	49.608	0.000		0.965	30.359	3.2	SURCHARGED
8.000	25	50.200	49.617	0.000		0.679	29.705	3.3	SURCHARGED
8.001	26	50.100	49.613	0.000		1.214	43.561	4.7	SURCHARGED
9.000	27	49.950	49.621	0.000		0.681	31.020	3.4	SURCHARGED
9.001	28	49.900	49.616	0.000		1.081	54.126	5.9	SURCHARGED
9.002	29	49.850	49.611	0.000		1.026	59.408	6.4	FLOOD RISK
8.002	30	49.950	49.608	0.000		1.902	102.962	11.0	SURCHARGED
1.009	31	49.700	49.604	0.000		89.552	761.215	18.9	FLOOD RISK
1.010	32	49.300	48.183	0.000		0.105	761.424	18.9	OK
10.000	33	50.900	49.608	0.000		0.060	39.601	4.6	OK
10.001	34	50.800	49.358	0.000		0.060	89.106	10.4	OK
10.002	35	50.300	48.902	0.000		0.164	130.718	15.2	OK
10.003	36	50.550	48.749	0.000		0.412	164.394	19.1	OK
10.004	37	50.350	48.639	0.000		0.326	211.276	24.6	OK
10.005	38	50.250	48.596	0.000		1.590	235.599	27.5	OK
11.000	39	51.150	49.886	0.000		0.035	42.241	4.9	OK
10.006	40	50.550	48.432	0.000		0.534	337.226	39.3	OK
10.007	41	49.300	47.863	0.000		0.147	381.472	44.5	OK
10.008	42	48.350	46.963	0.000		0.236	409.884	47.8	OK
10.009	43	48.800	46.862	0.000		0.843	423.776	49.3	OK
10.010	44	49.000	46.807	0.000		0.813	423.806	49.3	OK
10.011	45	49.350	46.769	0.000		0.931	452.940	52.6	OK
10.012	46	48.900	46.727	0.000		1.366	456.924	52.9	OK
12.000	47	47.850	46.690	0.000		0.039	24.425	2.8	OK
12.001	48	47.500	46.678	0.000		0.672	39.604	4.5	SURCHARGED
1.011	49	47.100	46.669	0.000	0.000	60.473	1266.373	66.5	OK

Summary of Results for 360 minute 100 year Winter (north)

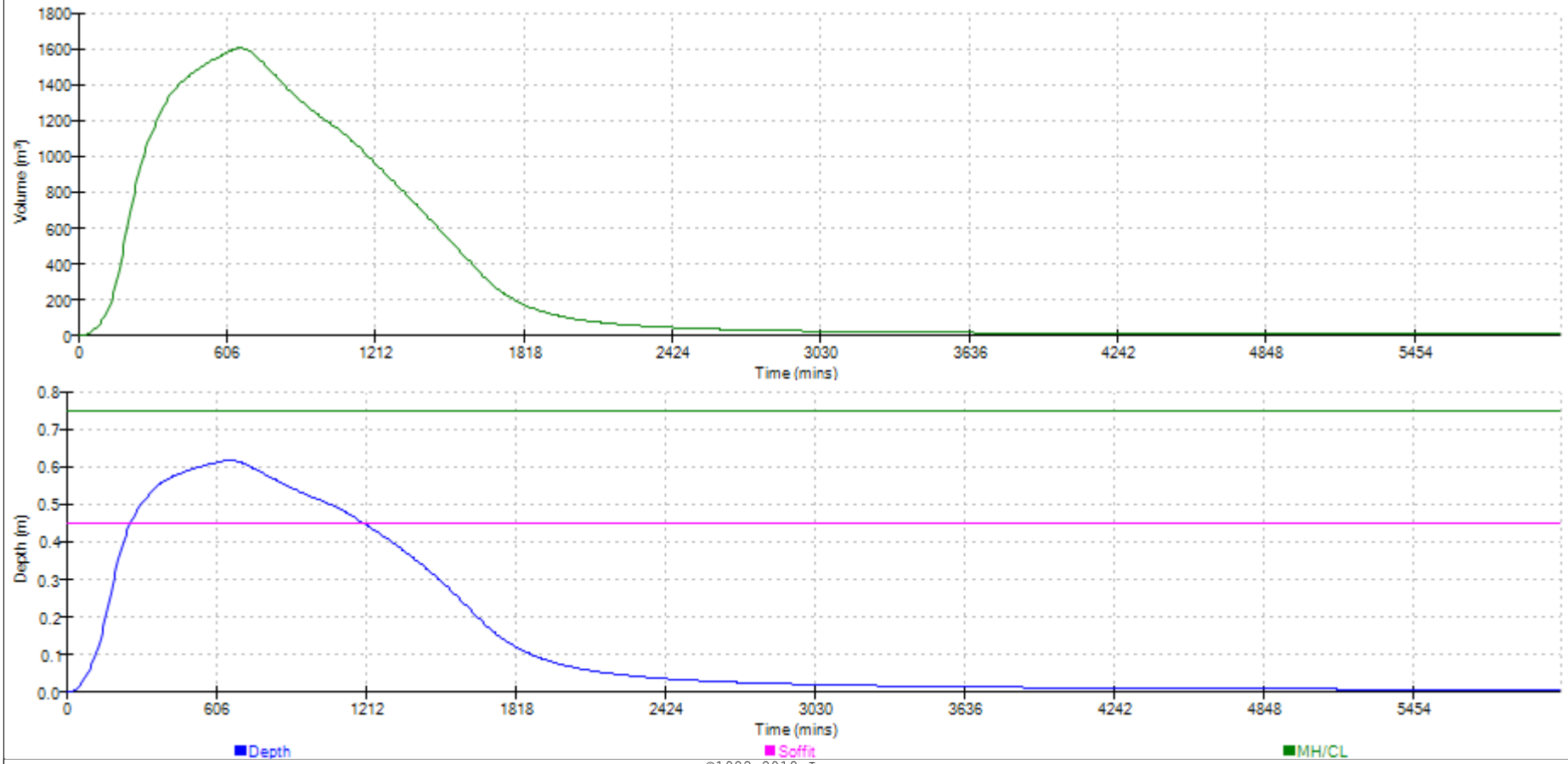
PN	US/MH Name	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
13.000	50	48.750	47.427	0.000		0.025	25.741	3.0	OK
13.001	51	46.850	45.571	0.000		0.082	50.825	5.9	OK
1.012	52	46.500	45.309	0.000		0.160	1339.852	74.4	OK
1.013	53	44.600	43.272	0.000		0.146	1340.433	74.4	OK
14.000	54	46.000	44.644	0.000		0.044	60.061	7.0	OK
14.001	55	45.000	43.177	0.000		0.081	97.688	11.4	OK
15.000	56	46.950	45.416	0.000		0.013	13.863	1.6	OK
15.001	57	46.300	43.823	0.000		0.021	24.426	2.8	OK
14.002	58	45.500	43.069	0.000		0.145	141.925	16.5	OK
14.003	59	44.200	42.468	0.000		0.100	174.938	20.4	OK
14.004	60	43.100	41.705	0.000		0.171	204.029	23.8	OK
14.005	61	43.700	41.670	0.000		1.625	204.059	23.8	OK
16.000	62	46.500	45.168	0.000		0.015	11.220	1.3	OK
16.001	63	45.500	44.182	0.000		0.033	34.988	4.1	OK
17.000	64	46.500	45.174	0.000		0.022	21.780	2.5	OK
17.001	65	44.650	43.282	0.000		0.033	25.748	3.0	OK
16.002	66	44.300	42.995	0.000		0.053	73.272	8.5	OK
1.014	67	41.800	41.670	0.000		7.263	1618.117	104.7	FLOOD RISK
18.000	68	50.100	48.955	0.000		0.057	105.054	12.3	OK
18.001	69	49.700	48.552	0.000		4.660	158.522	18.4	OK
18.002	70	49.800	48.400	0.000		1.757	215.958	25.0	OK
19.000	71	50.100	48.798	0.000		0.076	105.619	12.3	OK
20.000	72	50.100	48.795	0.000		0.046	26.401	3.1	OK
20.001	73	50.000	48.679	0.000		0.057	26.404	3.1	OK
19.001	74	50.000	48.241	0.000		0.311	140.595	16.4	OK
19.002	75	50.050	48.191	0.000		0.330	173.636	20.2	OK
19.003	76	50.050	48.124	0.000		0.750	173.621	20.2	OK
21.000	77	50.050	48.748	0.000		0.049	25.741	3.0	OK
21.001	78	50.050	48.666	0.000		0.116	48.192	5.6	OK
21.002	79	50.000	48.525	0.000		0.074	55.457	6.5	OK
18.003	80	49.950	48.108	0.000		0.784	478.760	55.5	OK
18.004	81	49.450	47.963	0.000		0.690	484.332	56.1	OK
22.000	82	49.800	49.036	0.000		0.036	43.904	5.1	OK
23.000	83	49.800	49.044	0.000		0.044	27.577	3.2	OK
22.001	84	49.600	48.758	0.000		3.060	110.591	12.9	OK
22.002	85	49.350	48.508	0.000		2.712	110.586	13.0	OK
18.005	86	49.300	47.904	0.000		1.520	623.268	72.2	OK
18.006	87	49.050	47.625	0.000		0.686	633.463	73.4	OK
24.000	88	48.800	48.042	0.000		0.042	24.950	2.9	OK
24.001	89	48.950	47.654	0.000		0.627	31.549	3.7	OK
18.007	90	49.000	47.557	0.000		0.839	665.052	77.2	OK
18.008	91	48.800	47.366	0.000		0.741	708.650	82.2	OK
18.009	92	48.400	46.890	0.000		0.262	729.230	84.5	OK
18.010	93	47.800	46.415	0.000		0.486	751.713	87.1	OK
25.000	94	49.500	48.217	0.000		0.070	52.810	6.1	OK
26.000	95	49.500	48.127	0.000		0.059	42.248	4.9	OK
26.001	96	49.400	47.992	0.000		0.176	64.035	7.5	OK
25.001	97	49.150	47.865	0.000		0.154	160.423	18.7	OK
25.002	98	48.700	47.278	0.000		0.100	215.227	25.1	OK
18.011	99	47.500	46.259	0.000		1.361	1007.259	116.2	OK
18.012	100	47.200	46.242	0.000		3.023	1034.401	118.9	SURCHARGED
27.000	101	48.950	47.652	0.000		0.053	34.987	4.1	OK
27.001	102	48.450	47.352	0.000		0.055	87.125	10.1	OK

Summary of Results for 360 minute 100 year Winter (north)

PN	US/MH Name	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
27.002	103	47.450	46.355	0.000		0.070	118.154	13.8	OK
18.013	104	47.200	46.227	0.000		4.081	1169.833	133.9	SURCHARGED
28.000	105	49.550	48.240	0.000		0.040	21.124	2.5	OK
29.000	106	49.450	48.234	0.000		0.146	33.006	3.8	OK
28.001	107	49.550	48.216	0.000		1.152	82.517	9.0	SURCHARGED
28.002	108	49.650	48.196	0.000		1.533	114.872	12.6	SURCHARGED
28.003	109	49.300	48.177	0.000		14.851	114.195	11.5	SURCHARGED
30.000	110	49.500	48.207	0.000		0.058	36.307	4.2	OK
30.001	111	49.350	48.003	0.000		0.066	40.264	4.7	OK
28.004	112	49.300	47.759	0.000		6.668	165.271	17.3	OK
28.005	113	48.700	47.548	0.000		17.288	149.513	17.3	OK
18.014	114	46.600	46.214	0.000		680.016	1319.330	46.9	SURCHARGED
31.000	115	48.200	47.392	0.000		0.011	53.989	5.7	OK
31.001	116	47.900	47.269	0.000		7.932	68.836	6.1	OK
31.002	117	47.900	47.167	0.000		6.803	68.834	6.0	SURCHARGED
31.003	118	48.100	46.947	0.000		0.224	78.762	6.8	OK
32.000	119	48.700	47.228	0.000		0.100	118.344	14.4	OK
32.001	120	48.250	46.980	0.000		0.253	126.250	15.3	OK
31.004	121	48.200	46.931	0.000		0.730	227.503	24.2	OK
31.005	122	48.000	46.821	0.000		0.744	247.330	26.3	OK
33.000	123	47.400	46.821	0.000		0.018	9.240	1.1	OK
31.006	124	47.400	46.725	0.000		1.365	261.828	27.9	OK
31.007	125	47.300	46.674	0.000		0.657	268.503	28.7	OK
31.008	126	46.660	46.503	0.000		0.547	281.066	30.1	FLOOD RISK*
31.009	127	46.560	46.346	0.000		0.353	281.084	30.0	FLOOD RISK*
18.015	128	45.800	45.569	0.000		396.796	1600.365	45.0	FLOOD RISK
1.015	129	41.800	41.667	0.000		1603.780	3217.612	45.2	FLOOD RISK

C & A Consulting Engineers Ltd		Page 1
Landmark House Station Road, Hook Hampshire RG27 9HA	13-037 Broad Oak 6hour, 1 in 100 Year Northern Site	
Date 15/01/2018 File 1IN100YEAR , 6 HOUR VOLUME STORAGE CALC - NORTH.MDX	Designed by SPS Checked by GAC	
XP Solutions	Network 2018.1.1	

Graphs for Pipe 1.015 US/MH 129 (north)
360 minute 100 year Winter
Status: FLOOD RISK



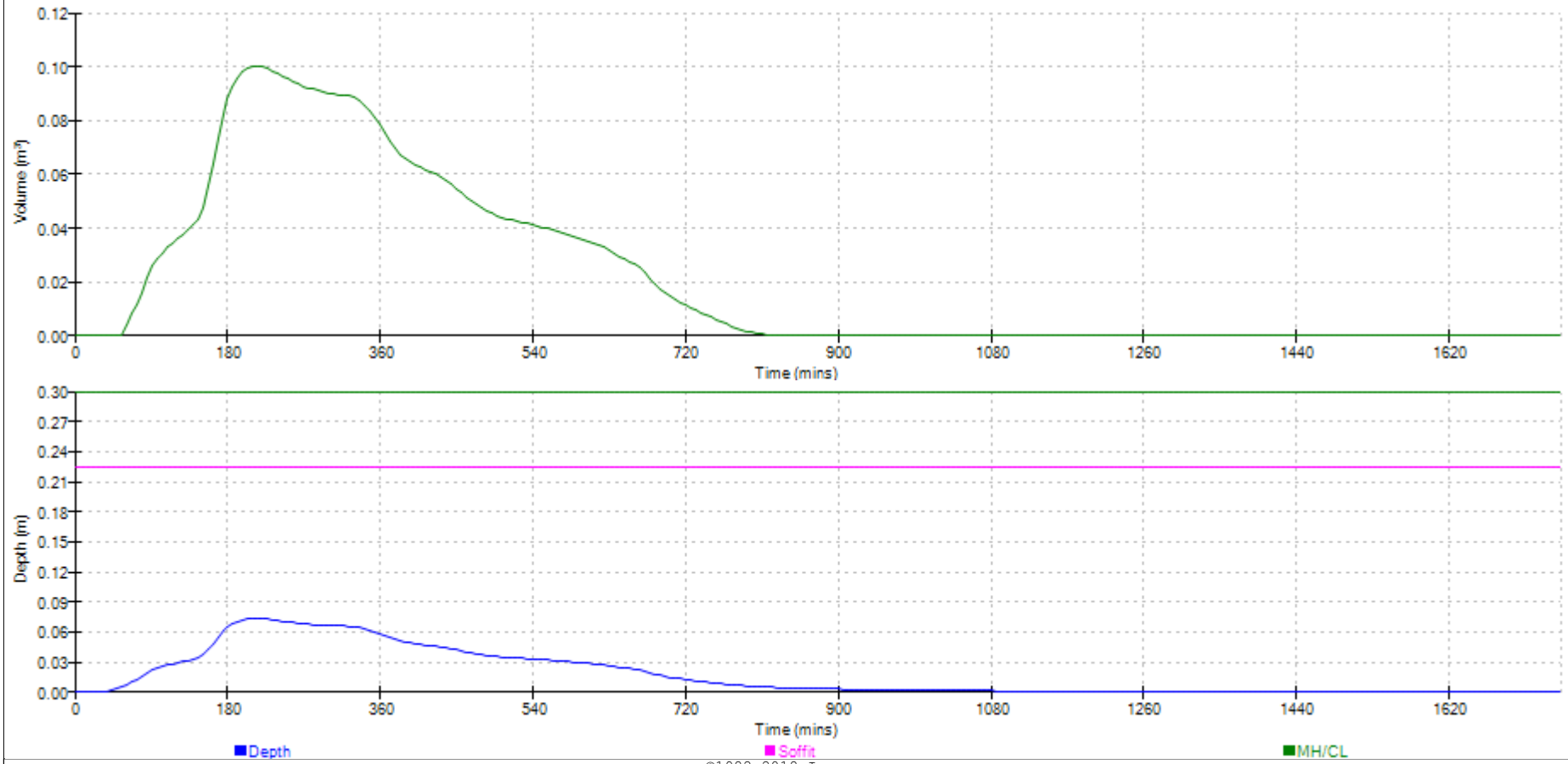
North-western Parcel

Summary of Results for 360 minute 100 year Winter (northwest - 6hour 1 in 100 year)

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

PN	US/MH Name	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
34.000	130	49.600	48.754	0.000		0.022	39.372	4.6	OK
34.001	131	48.800	48.053	0.000		0.625	78.643	9.0	OK
34.002	132	47.950	47.576	0.000		6.037	124.850	13.2	OK
34.003	133	47.950	47.568	0.000		48.213	124.778	8.4	SURCHARGED
35.000	134	49.850	48.478	0.000		0.048	73.269	8.5	OK
34.004	135	47.800	47.245	0.000		0.902	244.126	20.8	OK
34.005	136	47.700	47.231	0.000		0.966	244.170	20.6	OK
34.006	137	47.400	47.218	0.000		90.624	289.475	13.0	FLOOD RISK
36.000	138	49.900	49.018	0.000		0.014	45.263	5.4	OK
36.001	139	49.350	48.785	0.000		4.909	45.263	4.6	OK
36.002	140	48.000	47.368	0.000		0.407	50.543	5.1	OK
37.000	141	47.400	46.112	0.000		0.064	67.328	7.8	OK
36.003	142	46.700	45.991	0.000		0.111	127.772	13.9	OK
36.004	143	46.650	45.360	0.000		0.095	135.033	14.7	OK
38.000	144	47.600	45.628	0.000		0.026	21.783	2.5	OK
36.005	145	46.800	45.190	0.000		0.127	204.341	22.8	OK
34.007	146	45.800	43.981	0.000		0.994	506.250	36.9	SURCHARGED
34.008	147	44.300	43.947	0.000		67.973	505.630	26.9	SURCHARGED
39.000	148	44.200	42.875	0.000		0.023	18.482	2.2	OK
39.001	149	43.800	42.488	0.000		0.042	52.807	6.1	OK
39.002	150	42.800	41.494	0.000		0.048	69.308	8.1	OK
34.009	151	42.300	40.851	0.000		0.881	574.935	34.9	SURCHARGED
40.000	152	42.600	41.440	0.000		0.040	45.546	5.3	OK
34.010	153	40.800	40.770	0.000		100.021	618.995	36.4	FLOOD RISK
34.011	154	39.000	38.773	0.000		0.100	618.990	36.4	FLOOD RISK

Graphs for Pipe 34.011 US/MH 154 (northwest - 6hour 1 in 100 year)
360 minute 100 year Winter
Status: FLOOD RISK



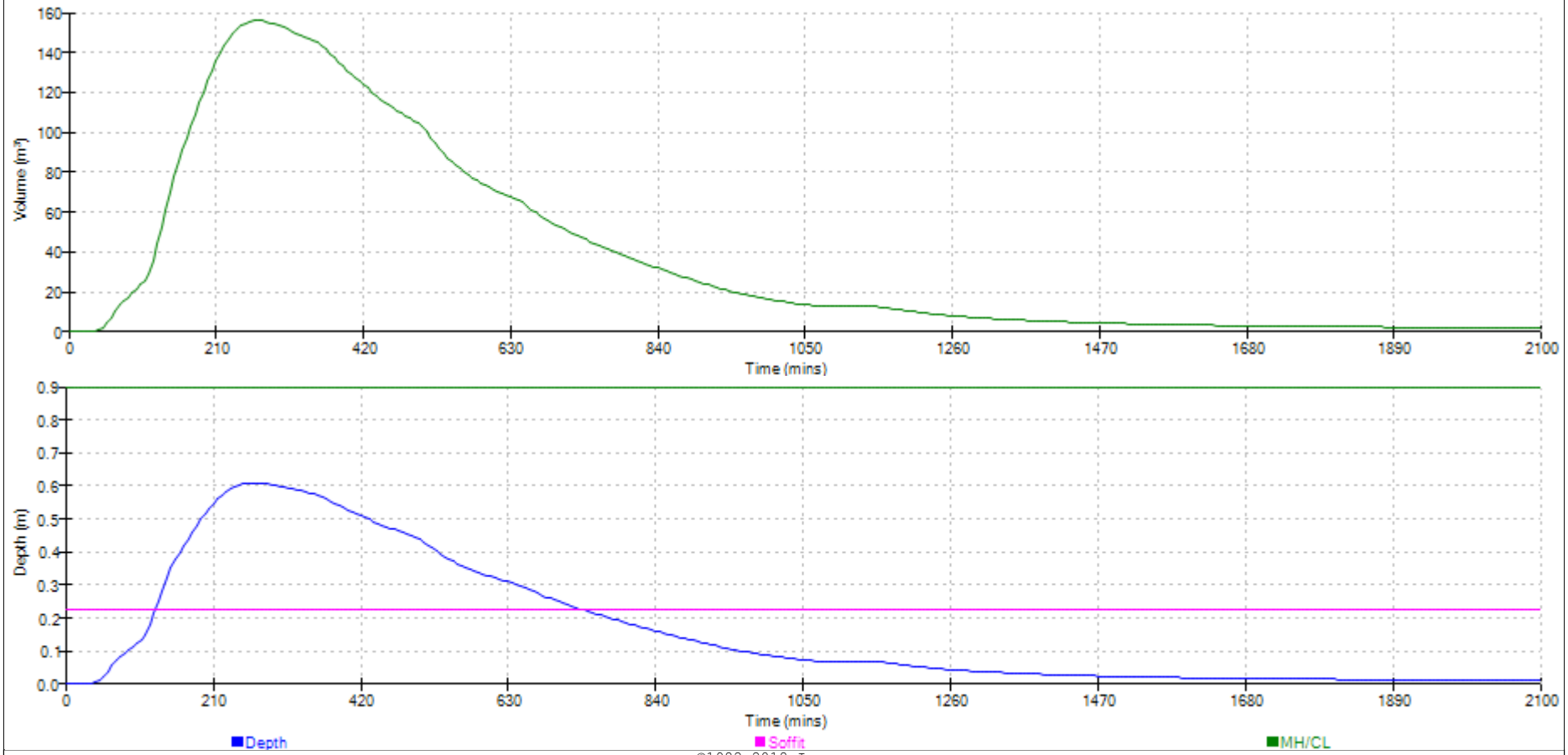
Southern Parcel

Summary of Results for 360 minute 100 year Winter (southern - 6 hour, 1 in 100 year)

Margin for Flood Risk Warning (mm) 240.0 DVD Status ON
Analysis Timestep Fine Inertia Status ON
DTS Status OFF

PN	US/MH Name	US/CL (m)	Water Level (m)	Flooded Volume (m³)	Overflow Vol (m³)	Maximum Vol (m³)	Discharge Vol (m³)	Pipe Flow (l/s)	Status
41.000	155	46.800	45.489	0.000		0.039	56.271	6.6	OK
41.001	156	46.350	45.313	0.000		8.348	56.389	5.0	OK
41.002	157	46.100	45.313	0.000		17.770	56.352	4.3	SURCHARGED
41.003	158	46.250	45.311	0.000		1.407	56.346	3.7	SURCHARGED
42.000	159	47.800	47.022	0.000		0.020	63.637	6.9	OK
42.001	160	47.400	46.749	0.000		11.931	77.498	6.2	SURCHARGED
42.002	161	46.800	45.425	0.000		0.105	113.144	10.1	OK
42.003	162	46.500	45.351	0.000		0.507	139.540	13.1	OK
42.004	163	46.200	45.337	0.000		0.903	163.311	15.7	SURCHARGED
42.005	164	45.800	45.321	0.000		1.523	163.313	15.4	SURCHARGED
41.004	165	45.500	45.308	0.000		63.885	239.447	9.9	FLOOD RISK
41.005	166	45.500	44.358	0.000		0.066	244.728	10.4	OK
41.006	167	45.000	43.872	0.000		0.098	277.732	13.8	OK
43.000	168	47.650	46.321	0.000		0.019	11.882	1.4	OK
43.001	169	47.200	45.850	0.000		0.051	49.506	5.8	OK
43.002	170	46.950	45.627	0.000		0.070	83.830	9.8	OK
43.003	171	46.600	45.067	0.000		0.078	132.676	15.4	OK
43.004	172	44.850	44.444	0.000		100.493	155.721	4.4	SURCHARGED
41.007	173	44.200	43.742	0.000		43.229	433.424	14.7	SURCHARGED
44.000	174	48.600	47.050	0.000		0.051	39.605	4.6	OK
44.001	175	47.850	46.566	0.000		0.069	110.894	12.9	OK
44.002	176	47.700	46.339	0.000		0.103	139.277	16.2	OK
45.000	177	47.800	46.475	0.000		0.022	13.862	1.6	OK
44.003	178	47.350	45.967	0.000		0.348	194.064	22.6	OK
44.004	179	45.950	44.309	0.000		0.101	226.407	26.4	OK
46.000	180	46.150	44.939	0.000		0.038	52.807	6.1	OK
44.005	181	45.800	44.018	0.000		1.145	295.708	34.1	SURCHARGED
44.006	182	45.750	43.942	0.000		1.324	326.087	37.3	SURCHARGED
44.007	183	45.300	43.837	0.000		27.393	337.324	37.1	SURCHARGED
47.000	184	45.800	44.827	0.000		0.053	32.344	3.8	OK
47.001	185	45.300	44.658	0.000		0.108	58.087	6.8	OK
47.002	186	44.200	43.770	0.000		0.819	64.029	7.4	SURCHARGED
47.003	187	44.100	43.761	0.000		68.166	67.056	3.3	SURCHARGED
44.008	188	44.100	43.752	0.000		49.932	404.167	30.0	SURCHARGED
41.008	189	44.000	43.709	0.000		156.073	835.752	28.9	SURCHARGED

Graphs for Pipe 41.008 US/MH 189 (southern - 6 hour, 1 in 100 year)
360 minute 100 year Winter
Status: SURCHARGED



Appendix J Southern Water Correspondence and Sewer Records

INFRASTRUCTURE ASSESSMENT FOR

FOUL DRAINAGE AT

LAND AT BROAD OAK (335A)

BROAD OAK, CANTERBURY

KENT, CT2 0NJ

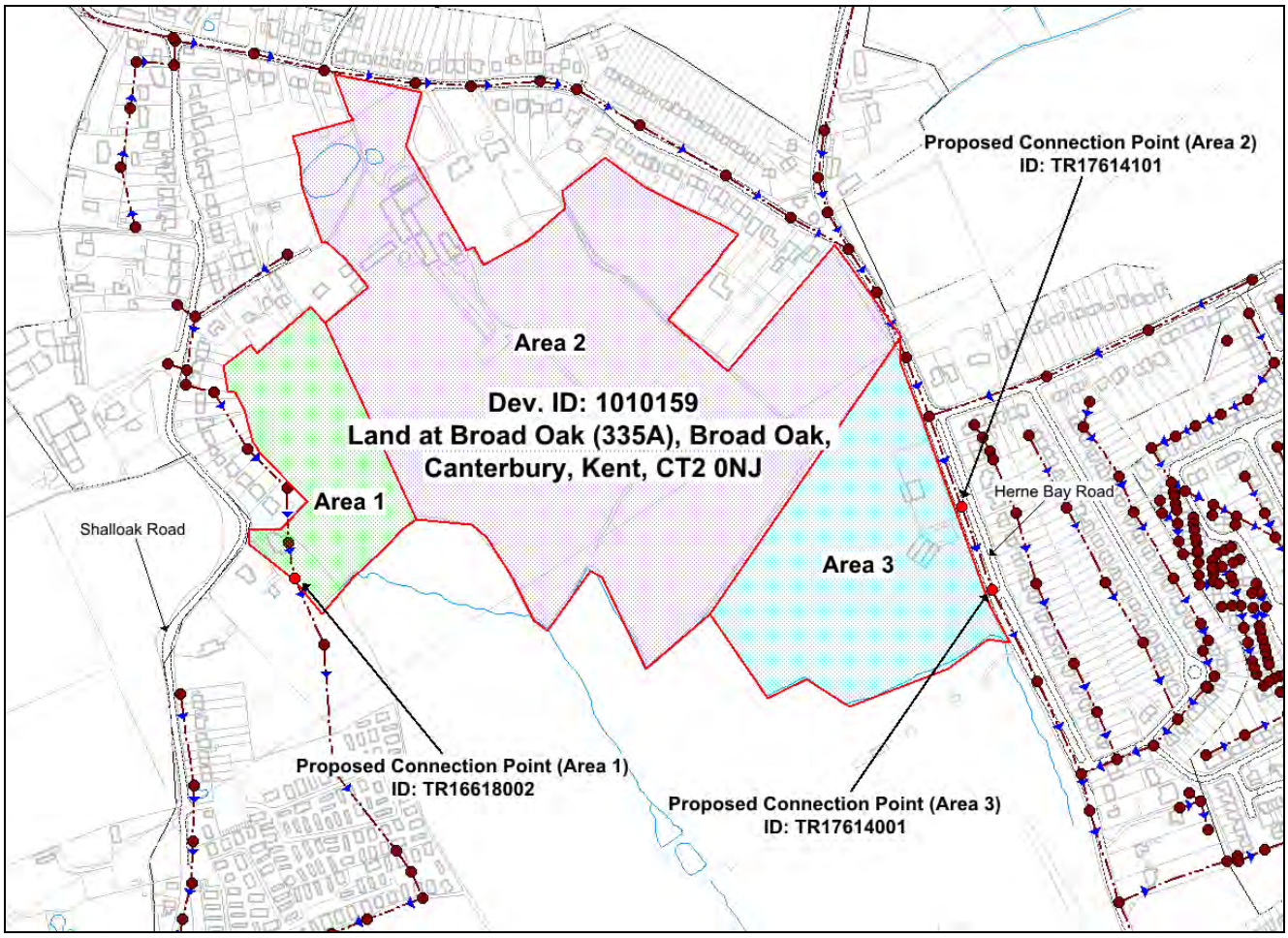
23 JUNE 2016

REQUESTED:
RMB CONSULTANTS (CIVIL ENGINEERING LTD)

I. Development Details:

The proposal is to discharge foul flow to the local foul sewerage system at manholes references (MH's) TR17614101 and TR17614001 located on Herne Bay Road and MH TR16618002 located off Shalloak Road.

Figure 1 - Proposed Development



II. Results and Conclusions:

Foul Water:

There is currently inadequate capacity within the local foul sewerage network to accommodate the proposed foul flows at manholes (MH) references TR16618002, TR17614101 and TR17614001. The proposed development would increase flows to the local network and as a result existing properties and land may be subject to a greater risk of flooding. Additional works required are summarized in Tables 1 and 2 and shown in Figures 2 and 3.

The nearest point where capacity is currently available is at MH TR1659760S at Canterbury WTW located approximately 2.5km south of the proposed development site.

Section 98 of the Water Industry Act 1991 provides a legal mechanism through which the appropriate infrastructure can be requested (by the developer) and provided to drain a specific location.

Figure 2- Proposed Improvements – Foul system

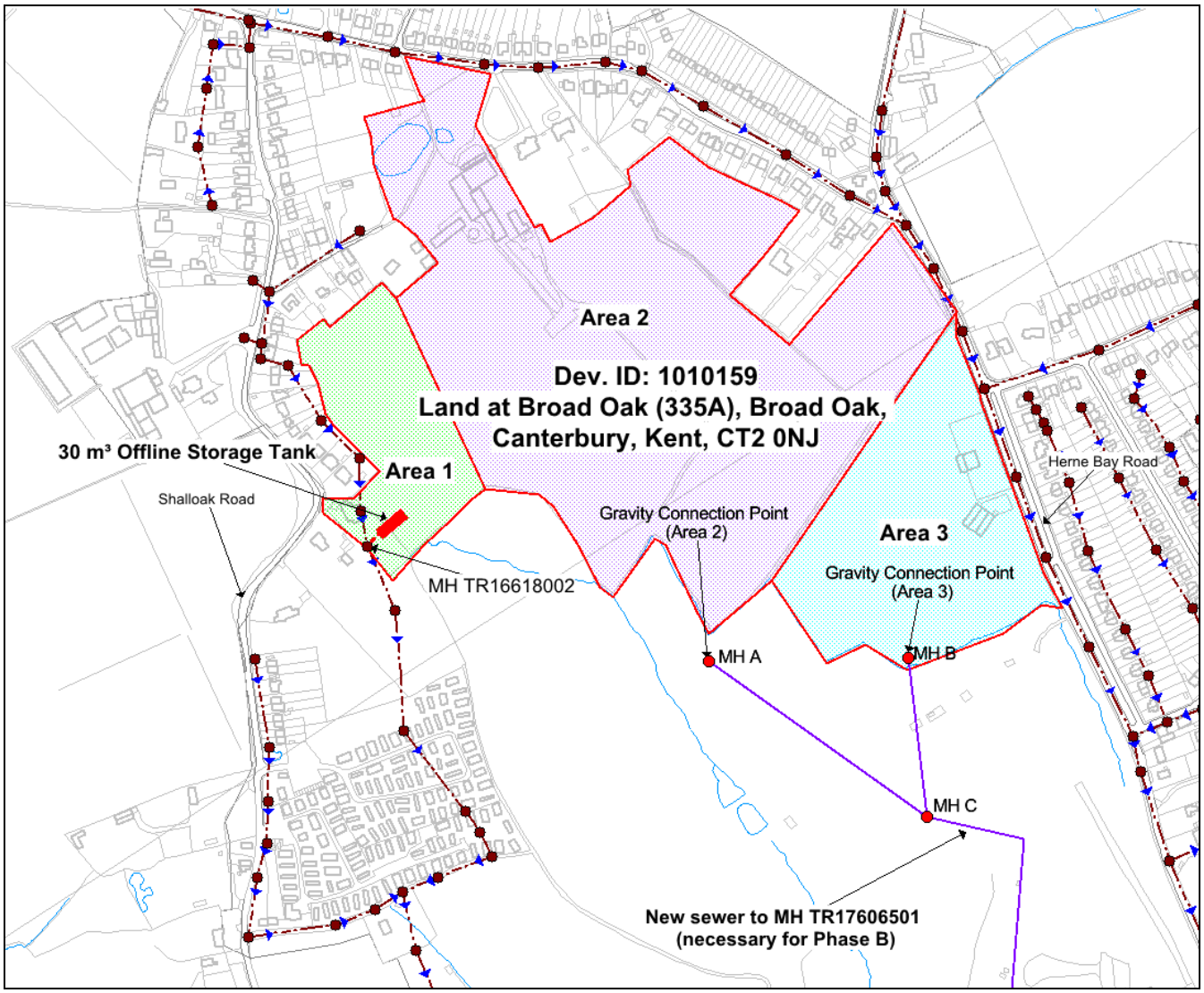


Figure 3- Proposed Improvements – Foul system

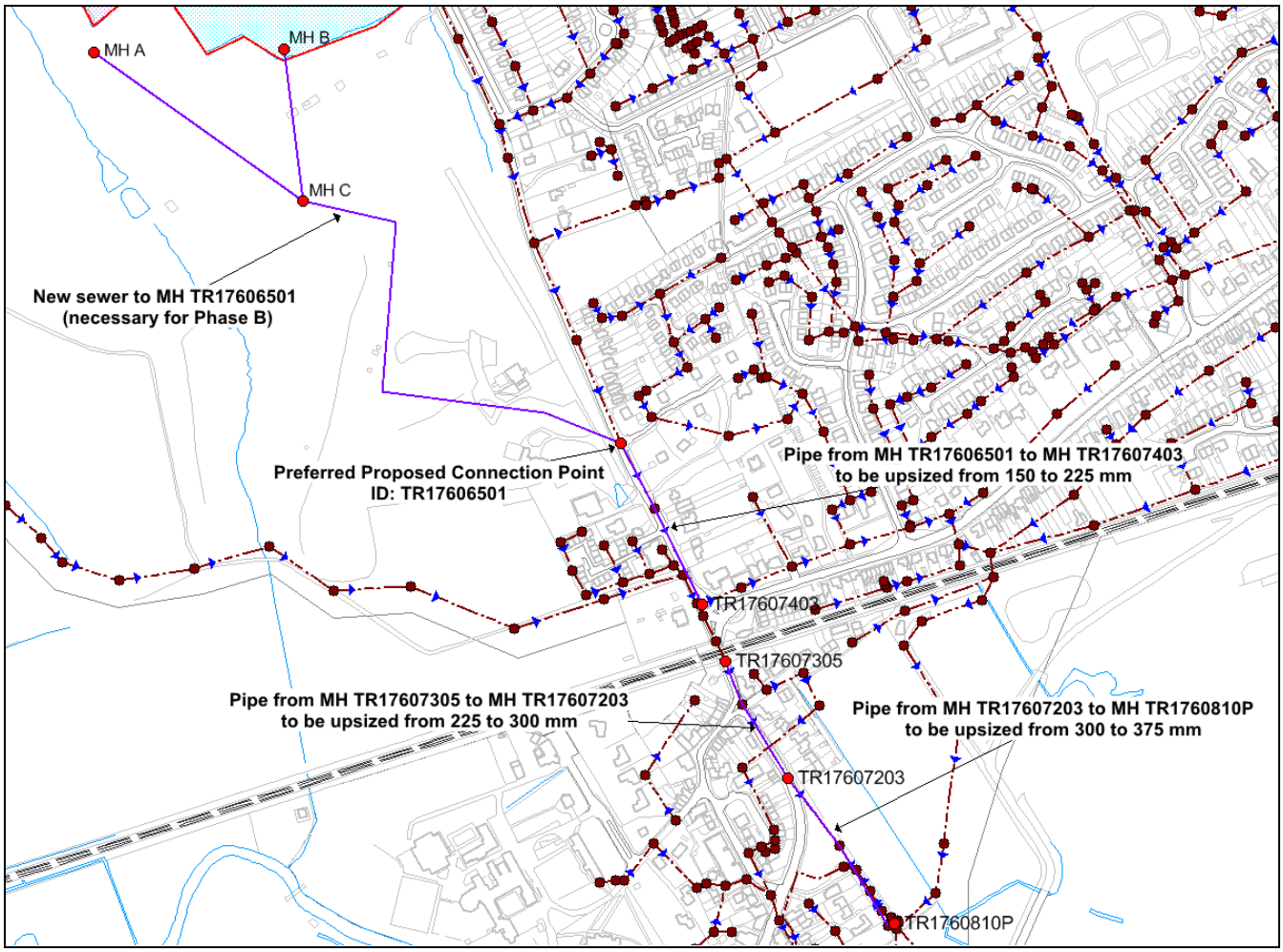


Table 1 Proposed Improvements Schedule – Area 1

D/S Manhole	Offline Storage Tank Capacity (m^3)
TR16618002	30

Table 2 Proposed Improvements Schedule – Areas 2 and 3

U/S Manhole	D/S Manhole	Sewer Diameter (mm)		Avg. Depth (m)	Length (m)
		Existing	Proposed		
MH A*	MH C*	-	225	2.4	238
MH B*	MH C*	-	225	2.9	142
MH C*	TR17606501*	-	225	2.6	475
TR17606501	TR17607403	150	225	1.5	170
TR17607305	TR17607203	225	300	2.3	122
TR17607203	TR1760810P	300	375	2.3	172

* NOTE: Sewers necessary for the construction of Phase B.

Surface Water:

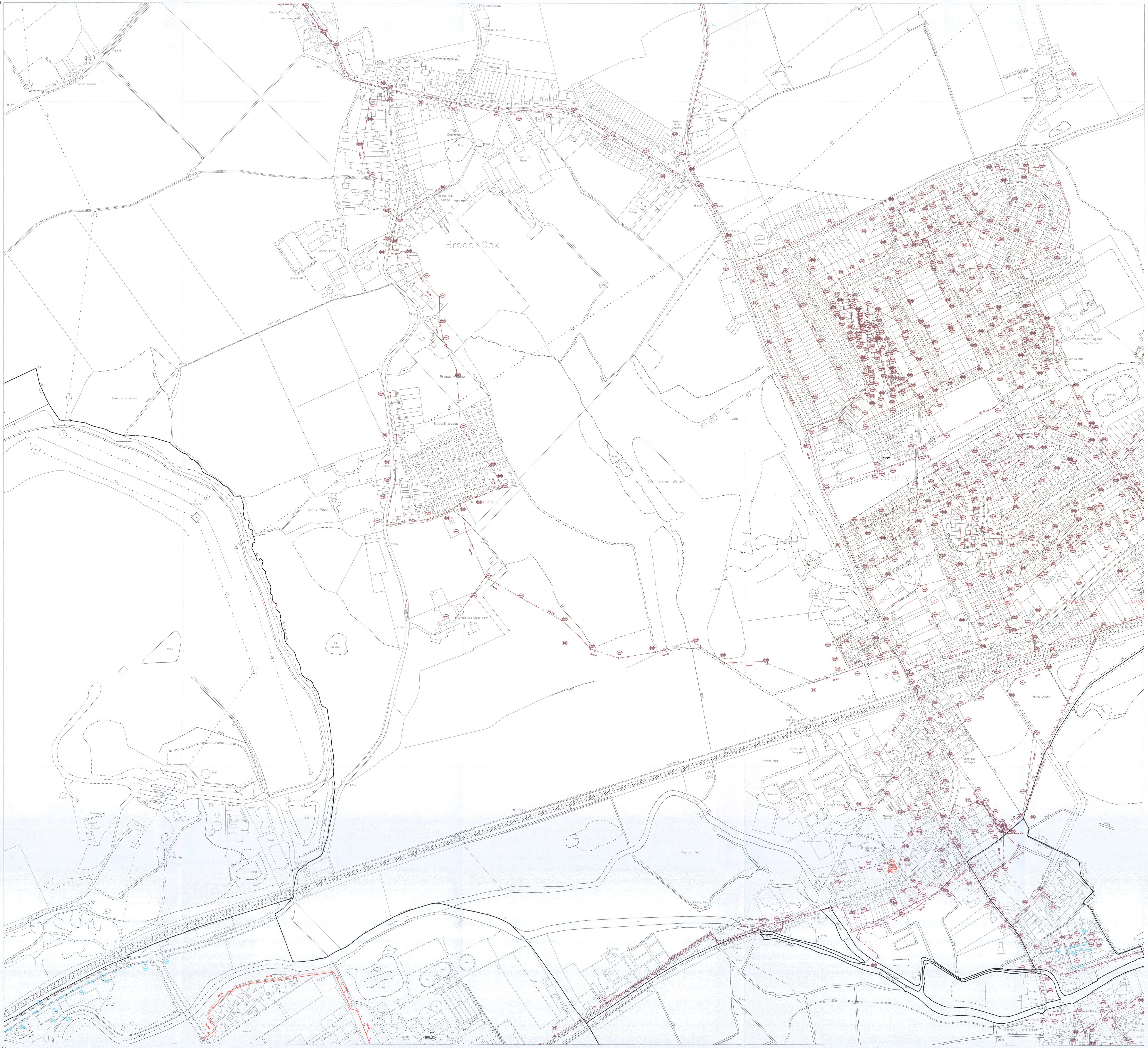
As a surface water capacity check has not been requested it is assumed that Surface Water will be disposed of by alternative means i.e. Soakaway or any local drainage watercourses, subject to all interested parties approval.

Before any connections are made, an application form needs to be completed and approved by Southern Water Services.

Please note: - The information provided above does not grant approval for any designs /drawings submitted for the capacity analysis. The results are an indicative hydraulic assessment and should not to be used as a basis for design. The results quoted above are only valid for 12 months from the date of issue of this letter.

PUBLIC SEWER RECORD

161669



159731

616008

SEWER RECORDS

618152

Node	Cover	Invert	Size	Material	Shape	
0201X	44.199		UNK	UNK	UNK	
0401X	50.06	47.9	175	VC	CIRC	*
0401X	23.56	19.5	150	PVC	CIRC	*
0402X	50	47.81	175	VC	CIRC	
0501X	7.919		150	CO	CIRC	*
0501X	26.3		150	PVC	CIRC	*
0502X			150	VC	CIRC	
0601X	15.99		300	VC	CIRC	
0602X	12.51	11.01	150	VC	CIRC	
0603X	13.3	12.23	150	VC	CIRC	
0604X			300	CP	CIRC	
0605X	16.532	15.109	150	PF	CIRC	
0606X	16.672	15.402	150	PF	CIRC	
0607X	16.691	15.743	150	PF	CIRC	
060DX			300	VC	CIRC	
0701X	17.46	14.62	300	VC	CIRC	*
0701X	4.18	1.31	150	VC	CIRC	*
0701X	3.977		400	PVC	CIRC	*
0702X	4.23		150	CI	CIRC	*
0702X	23.03		150	VC	CIRC	*
0703X	3.69	1.99	150	VC	CIRC	
0704X			150	VC	CIRC	*
0704Y			150	VC	CIRC	*
0704X	3.54	1.09	150	VC	CIRC	*
0705X	18.3	17.76	100	PF	CIRC	
0706X	18.11	16.72	100	PF	CIRC	*
0706X	4.47	1.52	150	VC	CIRC	*
0707X	16.86	16.21	100	VC	CIRC	
0708X			150	CI	CIRC	*
0708X	19.839	18.187	100	PF	CIRC	*
0709X	18.495	17.785	150	VC	CIRC	*
0709X			150	CI	CIRC	*
0711X	18.37	16.94	100	PF	CIRC	
0712X	16.86	15.96	150	PF	CIRC	
0750X	5.14	3.971	225	CP	CIRC	
0801X	24.73	22.6	150	VC	CIRC	*
0801X	3.27	1.39	150	VC	CIRC	*
0802X	25.98	24.33	150	VC	CIRC	
0803X			150	VC	CIRC	*
0803X	24.57		150	VC	CIRC	*
0804X	26.56		150	VC	CIRC	
0805X	26.99	25.55	150	VC	CIRC	
0806X	27.69		150	VC	CIRC	
0807X	25.512		150	VC	CIRC	
0808X			150	VC	CIRC	
0809X	27.234		150	VC	CIRC	
0850X	5.03	3.65	450	CP	CIRC	
0901X	3.05	1.96	150	VC	CIRC	
0902X	3.19	2.19	150	VC	CIRC	*
0902X			150	VC	CIRC	*
0903X	3.14	2.37	150	VC	CIRC	*
0903X	30.373		150	VC	CIRC	*
0904X	3.157	2.305	150	VC	CIRC	
0905X			150	VC	CIRC	
090DX	27.75	26.42	150	VC	CIRC	
0950X	3.157	2.273	150	VC	CIRC	
0951X	3.157	2.181	150	VC	CIRC	
0952X	3.067	2.103	225	VC	CIRC	
0953X	2.997	2.042	225	VC	CIRC	
1401X	20.54	14.38	150	PVC	CIRC	*
1401X	49.97	47.48	175	VC	CIRC	*
1402X	21.53	15.01	150	PVC	CIRC	
1501X	8.59	7.52	150	VC	CIRC	
1602X			150	VC	CIRC	
1603X	15.414		150	VC	CIRC	
1604X			150	VC	CIRC	
1702X	4.18	2.55	150	VC	CIRC	
1703X	17.53	13.91	300	VC	CIRC	
1704X	19.19	17.19	150	VC	CIRC	
1705X	20.2	14.62	150	VC	CIRC	
1708X	19.82	14.48	150	VC	CIRC	
1709X	22.99		150	VC	CIRC	
1711X	23		150	VC	CIRC	
1712X	22.75		150	VC	CIRC	
1750X	4.782		450	CP	CIRC	
1801X	24.31	22.06	150	VC	CIRC	*
1801X			UNK	UNK	UNK	*
1801X	3.38	0.74	150	VC	CIRC	*
1802X	3.22	0.92	150	VC	CIRC	
185CX	4.89	3.81	300	CP	CIRC	
2301X	49.58	46.72	175	VC	CIRC	
2302X	49.48	46.62	175	VC	CIRC	
2303X	49.59	46.72	175	VC	CIRC	
2304X	49.7	47.1	150	VC	CIRC	
2401X	19.52		150	PVC	CIRC	*
2401X	49.56	47.66	150	VC	CIRC	*
285CX	5.308	4.138	225	CP	CIRC	
286CX	4.82	3.95	300	CP	CIRC	
3101X	48.37	44.84	175	VC	CIRC	
3201X	49.48	46.25	175	VC	CIRC	
3202X	49.39	45.75	175	VC	CIRC	
3301X	49.48	46.53	175	VC	CIRC	
3401X	12.04	11.08	150	PVC	CIRC	
3402X	12.57		150	PVC	CIRC	
4001X	46.01	43.91	175	VC	CIRC	
4002X	45.41		150	VC	CIRC	
4101X	47.64	44.36	175	VC	CIRC	
4102X	47.81	46.91	150	VC	CIRC	
4103X	47.82	47.1	150	VC	CIRC	
4104X	47.99	47.38	150	VC	CIRC	
4105X	46.75	45.97	150	VC	CIRC	
4106X	47.53	46.83	150	VC	CIRC	
4107X	48.402		150	VC	CIRC	
4201X	48.21	45.53	175	VC	CIRC	
4401X	13.16	10.53	150	VC	CIRC	
4901X	42.07	40.16	175	VC	CIRC	*
4901X			UNK	UNK	UNK	*
4902X			UNK	UNK	UNK	
490DX			UNK	UNK	UNK	
490PX			UNK	UNK	UNK	
5001X	41.08	40.26	150	VC	CIRC	*
5001X	3.57		150	CI	CIRC	*
5002X	43.516		150	VC	CIRC	
5003X			150	VC	CIRC	
5101X	45.83		150	VC	CIRC	
5102X	42.337		150	VC	CIRC	
5103X	44.095		UNK	UNK	CIRC	
5104X	46.31		UNK	UNK	CIRC	
5105X			150	VC	CIRC	
5106X			150	VC	CIRC	
5107X	41.36	39.7	150	VC	CIRC	
5108X			150	VC	CIRC	
5109X	40.52	39.84	100	VC	CIRC	
5110X	40.57		100	VC	CIRC	
5111X	40.55		100	VC	CIRC	
5112X			100	VC	CIRC	
5113X			100	VC	CIRC	
5114X	40.53	39.27	100	VC	CIRC	
5201X	48.22	46.06	175	VC	CIRC	
5401X	11.1	9.88	150	PVC	CIRC	
5403X		13.25	150	VC	CIRC	
5404X		12.8	150	VC	CIRC	
5405X		11.6	150	VC	CIRC	
5406X		10.7	150	VC	CIRC	
5601X	24.83	23.01	150	VC	CIRC	*
5601X	50.45		150	VC	CIRC	*
5701Y	30.85		225	VC	CIRC	*
5701X	30.85	29.36	150	VC	CIRC	*
5801X	35.77	35.16	175	VC	CIRC	
5802X	36.26	34.92	175	VC	CIRC	
5803X	36.45		225	VC	CIRC	
5804X	39.718		225	VC	CIRC	
5901X	36.19	35.32	150	VC	CIRC	
5902X			150	VC	CIRC	
5903X	39.718		UNK	UNK	UNK	*
5903X	4.32		150	VC	CIRC	*
5904X	36.341		150	VC	CIRC	
6001X			150	VC	CIRC	*
6001X	3.59	1.64	150	PVC	CIRC	*
6002X	3.58	2.14	150	CI	CIRC	*
6002X	39.55		100	VC	CIRC	*
6003X			150	CI	CIRC	*
6003X	39.57	38.69	100	VC	CIRC	*
6004X	39.56	38.54	150	VC	CIRC	*
6004X			100	OTHER	CIRC	*
6005X	39.56	38.39	150	VC	CIRC	*
6005X			UNK	OTHER	CIRC	*
6006X			150	VC	CIRC	
6007X	39.6	38.25	150	VC	CIRC	
6008X			150	VC	CIRC	
6009X			150	VC	CIRC	
600DX			UNK	UNK	UNK	*
600DX			150	VC	CIRC	*
6010X			150	VC	CIRC	
6011X	28.31		100	VC	CIRC	
6012X	38.33		100	VC	CIRC	
6013X	38.32		100	VC	CIRC	
6014X	38.34	36.86	100	VC	CIRC	
6015X	37.19	36.66	150	VC	CIRC	
6016X	37.72		100	VC	CIRC	
6017X	37.71		100	VC	CIRC	
6018X	37.67	36.72	100	VC	CIRC	
6019X			100	VC	CIRC	
601DX			150	CI	CIRC	
6020X			100	VC	CIRC	
6021X	37.38	36.46	100	VC	CIRC	
6022X	36.83		100	VC	CIRC	
6023X	36.37		150	VC	CIRC	
6024X			100	VC	CIRC	
6025X			100	VC	CIRC	
6026X			100	VC	CIRC	
6027X			150	VC	CIRC	
6028X			150	VC	CIRC	
6029X	36.34		100	VC	CIRC	
6030X	36.32	35.26	100	VC	CIRC	
6031X	36.28	35.16	100	VC	CIRC	
6032X			100	VC	CIRC	
6033X			100	VC	CIRC	
6034X	35.58	34.36	150	VC	CIRC	

Node	Cover	Invert	Size	Material	Shape	
6035X			100	VC	CIRC	
6036X	36.61	35.84	100	VC	CIRC	
6037X	36.51	35.58	150	VC	CIRC	
6038X			150	VC	CIRC	
6039X	39.59		100	VC	CIRC	
6040X	39.19	38.18	150	VC	CIRC	
6041X			150	VC	CIRC	
6101X	3.93	2.05	150	CO	CIRC	*
6101X			150	VC	CIRC	*
6102X	3.59	2.2	150	CO	CIRC	*
6102X			150	VC	CIRC	*
6103X	3.73	2.42	150	VC	CIRC	*
6103X			150	VC	CIRC	*
6104X	40.97	39.34	150	VC	CIRC	*
6104X	4.26	1.54	225	VC	CIRC	*
6105X			100	VC	CIRC	*
6105X	3.307		UNK	UNK	UNK	*
6106X			100	VC	CIRC	
6107X			150	VC	CIRC	
610DX			150	VC	CIRC	
6201X			150	VC	CIRC	*
6201X	4.33		UNK	UNK	UNK	*
6202X	4.03	1.54	150	VC	CIRC	*
6203X			150	VC	CIRC	*
6203X	4.706		150	CO	CIRC	*
6206X	48.27	47.13	150	VC	CIRC	
6207X	48.29	46.94	150	VC	CIRC	
6208X	48.06	46.77	150	VC	CIRC	
6209X	47.97	46.58	150	VC	CIRC	
6301X	48.59	46.7	175	VC	CIRC	*
6301X	52.4	51.56	150	VC	CIRC	*
6302X	52.31		150	VC	CIRC	
6401X	10.95	8.28	150	VC	CIRC	*
6401X	52.121		UNK	UNK	UNK	*
6402X	9.3	7.93	300	VC	CIRC	*
6402Y	9.3		UNK	UNK	UNK	*
6402X	52.593		UNK	UNK	UNK	*
6403X	11.83	9.09	150	PVC	CIRC	
6412X		9.84	150	VC	CIRC	
6413X		11.45	150	VC	CIRC	
6414X		12.59	150	VC	CIRC	
6415X		10.07	150	VC	CIRC	
6416X		12.4	150	VC	CIRC	
6417X		10.32	150	VC	CIRC	
6501X	18.96	17.32	150	VC	CIRC	*
6501X	51.61		150	VC	CIRC	*
6502X	15.34		150	VC	CIRC	
6601X	25.49	23.88	150	VC	CIRC	
6602X	25.87	24.17	150	VC	CIRC	*
6602X	50.725		150	VC	CIRC	*
6603X	24.73	22.62	150	VC	CIRC	
6604X	24.48		150	VC	CIRC	
6605X	23.55	21.16	150	VC	CIRC	
6606X	22.94	19.56	150	VC	CIRC	
6607X	24.117		150	VC	CIRC	
6701X	25.76	23.24	150	VC	CIRC	
6702X	25.85		150	VC	CIRC	
6801X	38.106	26.357	150	VC	CIRC	
6802X			150	VC	CIRC	
6803X	28.798	26.158	150	VC	CIRC	
6804X	28.718	26.108	150	VC	CIRC	
6805X	27.413	25.893	150	VC	CIRC	
6901X	36.73		150	VC	CIRC	*
6901X	2.326		UNK	UNK	UNK	*
6902X	37.97	36.9	150	VC	CIRC	*
6902X	3.191		UNK	UNK	UNK	*
6903X	3.249		UNK	UNK	UNK	*
6903X			150	VC	CIRC	
6904X			150	VC	CIRC	
6905X			150	VC	CIRC	
6906X	35.52		150	VC	CIRC	
6907X			150	VC	CIRC	
6908X			150	VC	CIRC	
6909X	35.54		150	VC	CIRC	
690DX			150	VC	CIRC	
6910X			150	VC	CIRC	
6911X	34.94	33.98	150	VC	CIRC	
6912X	34.92		150	VC	CIRC	
6913X	34.93		150	VC	CIRC	
6914X	33.3		150	VC	CIRC	
6915X	33.22	32.39	150	VC	CIRC	
6916X	33.3	32.54	150	VC	CIRC	
6917X	33.9		150	VC	CIRC	
6918X	33.9		150	VC	CIRC	
6919X	33.91		150	VC	CIRC	
6920X			150	VC	CIRC	
6921X			100	VC	CIRC	
6922X			100	VC	CIRC	
6923X			150	VC	CIRC	
6924X			150	VC	CIRC	
6925X			150	VC	CIRC	
6926X			UNK	UNK	UNK	
7001X	3.16		UNK	UNK	UNK	*
7001X			150	VC	CIRC	*
7002X			150	VC	CIRC	
7003X			150	VC	CIRC	*
7003X	3.158		UNK	UNK	UNK	*
7004X			150	VC	CIRC	*
7004X	3.709		UNK	UNK	UNK	*
7005X	3.033		UNK	UNK	UNK	*
7005X			150	VC	CIRC	*
7006X			150	VC	CIRC	*
7006X			150	VC	CIRC	*
7007X			150	VC	CIRC	*
7007X			150	VC	CIRC	*
700AX	3.3	2.15	300	PE	CIRC	
7101X	51.34	48.61	150	VC	CIRC	*
7101X			150	VC	CIRC	*
7101X	4.22		225	CO	CIRC	*
7102X			150	VC	CIRC	*
7102X	4.32	1.05	225	CO	CIRC	*
7103X	46.09	44.414	150	VC	CIRC	*
7103X	4.35	1.14	225	CO	CIRC	*
7104X	4.28	1.28	150	CO	CIRC	*
7104X			150	VC	CIRC	*
7105X	4.28	2.61	OTHER	CO	CIRC	*
7105X			150	VC	CIRC	*
7106X			150	VC	CIRC	*
7106X			UNK	UNK	UNK	*
7107X	3.892		UNK	UNK	UNK	*
7107X			150	VC	CIRC	*
7108X			150	VC	CIRC	*
7108X	3.938	2.353	150	CO	CIRC	*
7109X	4.09		UNK	UNK	UNK	*
7109X			150	VC	CIRC	*
7110X	3.938		150	CI	CIRC	*
7110X			150	VC	CIRC	*
7111X	3.892		UNK	UNK	UNK	*
7111X			150	VC	CIRC	*
7112X	46.2	44.483	150	VC	CIRC	
7201X			100	VC	CIRC	*
7201X	4.63	2.69	150	CO	CIRC	*
7201X	52.88	51.17	150	VC	CIRC	*
7202X			150	VC	CIRC	*
7202X	4.49	2.78	150	CO	CIRC	*
7202X	52.8	51.4	150	VC	CIRC	*
7203X	52.9	50.95	150	VC	CIRC	*
7203X	5.658		UNK	UNK	UNK	*
7203X			150	VC	CIRC	*
7204X	52.75	50.68	150	VC	CIRC	*
7204X			150	VC	CIRC	*
7204X	6.73	4.92	225	CO	CIRC	*
7205X	47.18	46.19	150	VC	CIRC	*
7205X	51.587		UNK	UNK	UNK	*
7206X	47.17	46.11	150	VC	CIRC	
7207X	47.19	46.03	150	VC	CIRC	
7208X	47.36	45.64	150	VC	CIRC	
7209X	47.32	45.86	150	VC	CIRC	
720DX			UNK	UNK	UNK	
7210X			100	VC	CIRC	
7211X			100	VC	CIRC	
7212X			150	VC	CIRC	
7213X			150	VC	CIRC	
7214X			100	VC	CIRC	
7215X	47.35	45.23	150	VC	CIRC	
7216X	46.55	44.712	150	VC	CIRC	
7217X	46.8	44.635	150	VC	CIRC	
7218X			150	VC	CIRC	
7301X	6.56	4.87	150	CO	CIRC	*
7301X	48.27	46.79	150	VC	CIRC	*
7302X			150	VC	CIRC	*
7302X	6.43	4.31	150	CO	CIRC	*
7303X	6.254		UNK	UNK	UNK	*
7303X			150	VC	CIRC	*
7304X			100	VC	CIRC	
7305X	7.094		UNK	UNK	UNK	*
7305X			150	VC	CIRC	*
7306X	7.08		225	CO	CIRC	
7307X	7.4		225	CO	CIRC	
7401X	9.01	7.22	150	CO	CIRC	*
7401X	51.72	49.25	175	VC	CIRC	*
7402X	8.68	6.64	300	PVC	CIRC	*
7402X	51.87	49.82	150	VC	CIRC	*
7403X	9.24		150	CO	CIRC	*
7403Y	9.24	7.88	300	PVC	CIRC	*
7404X	9.769		150	CO	CIRC	
7501X	22.1		150	VC	CIRC	*
7501X	51.24	49.64	150	VC	CIRC	*
7502X			150	CO	CIRC	*
7502X	52.28	50.53	150	VC	CIRC	*
7601X	25.17	23.61	150	VC	CIRC	*
7601X	47.99	46.51	150	VC	CIRC	*
7602X	24.92	23.79	150	VC	CIRC	
7603X	16.6	15.66	150	VC	CIRC	
7604X	18.58	15.31	150	VC	CIRC	
7605X	20.87	19.66	150	VC	CIRC	
7606X	19.4		150	VC	CIRC	
7701X	50.63		150	VC	CIRC	*
7701X	25.45	23.89	150	VC	CIRC	*

Node	Cover	Invert	Size	Material	Shape	
7702X	48.707		UNK	UNK	UNK	*
7702X	26.29	24.95	150	VC	CIRC	*
7703X	26.59	25.37	150	VC	CIRC	
7704X	25.9	24.52	225	VC	CIRC	
7705X	25.65	23.57	225	VC	CIRC	
7706X	24.79	23.61	150	VC	CIRC	
7708X	24.26	21.97	150	VC	CIRC	
7709X	26.19	25.22	150	VC	CIRC	
7710X	25.74		150	VC	CIRC	
7711X	24.32	20.22	150	VC	CIRC	
7712X	25.86	23.47	150	VC	CIRC	
7713X	23.826		150	VC	CIRC	
7801X	49.34		150	VC	CIRC	
7802X	28.37	25.11	225	VC	CIRC	*
7802X	50.118		UNK	UNK	UNK	*
7803X	26.4		150	VC	CIRC	
7804X			225	VC	CIRC	
7805X	25.362		UNK	UNK	CIRC	
7806X	27.013	25.283	150	VC	CIRC	
7807X	27.203	25.083	150	VC	CIRC	
7901Y	31.47		UNK	UNK	UNK	*
7901X			UNK	UNK	UNK	*
7901X	31.47	29.92	150	VC	CIRC	*
7901X			UNK	UNK	UNK	*
7902X	31.1	28.38	150	VC	CIRC	
7903X			UNK	UNK	CIRC	
7904X	33.53		150	VC	CIRC	
7905X	33.03		150	VC	CIRC	
7906X			UNK	UNK	UNK	
7907X			UNK	UNK	UNK	
7908X			150	VC	CIRC	
8001X	3.68	0.15	300	CO	CIRC	*
8001X	49.94	48.29	150	VC	CIRC	*
8001X			150	VC	CIRC	*
8002X			150	VC	CIRC	*
8002X	3.2	−0.06	300	CO	CIRC	*
8002X	49.87		150	VC	CIRC	*
8003X	3.65	0.11	225	VC	CIRC	*
8003X			150	VC	CIRC	*
8004X			150	VC	CIRC	*
8004X	3.23	−0.02	225	VC	CIRC	*
8005X			150	VC	CIRC	*
8005X	3.7	0.62	225	VC	CIRC	*
8006X			150	VC	CIRC	
8007X			100	VC	CIRC	
8009X			150	VC	CIRC	
8010X			150	VC	CIRC	
8011X			UNK	UNK	CIRC	
8012X			150	VC	CIRC	
8013X			100	VC	CIRC	
8101X	50.88	48.4	150	VC	CIRC	*
8101X	3.71		150	VC	CIRC	*
8101X	42.8		150	VC	CIRC	*
8102X	3.91	−0.21	300	CO	CIRC	*
8102Y	3.91		400	PVC	CIRC	*
8102X	44.126		UNK	UNK	UNK	*
8103X			150	VC	CIRC	*
8103X	3.99	1.79	300	PVC	CIRC	*
8104X	3.292		UNK	UNK	UNK	*
8104X			150	VC	CIRC	*
8105X			150	VC	CIRC	*
8105X	4	−0.035	400	PVC	CIRC	*
8106X	4.2	−0.155	400	PVC	CIRC	*
8106X			150	VC	CIRC	*
8107X	4.2	−0.265	400	PVC	CIRC	*
8108X	4.2	−0.427	400	PVC	CIRC	*
8108X			150	VC	CIRC	*
8109X			150	VC	CIRC	*
8109X	4.2	−0.665	400	PVC	CIRC	*
810PX			UNK	UNK	UNK	
8110X	4.12	3.2	100	PE	CIRC	*
8110Y	4.12	3	225	PVC	CIRC	*
8110X			150	VC	CIRC	*
811PX	4.25	1.865	300	PE	CIRC	
8201X	46.43	44.7	150	VC	CIRC	*
8201X	4.32	2.07	300	PVC	CIRC	*
8202X	47.2	45.81	150	VC	CIRC	
8203X	47.19	45.35	150	VC	CIRC	
8204X	46.4	44.96	150	VC	CIRC	
8205X	46.31		150	VC	CIRC	
8206X			150	VC	CIRC	
8207X			150	VC	CIRC	
8301X	47.74		150	VC	CIRC	*
8301X	52.61	51.01	150	VC	CIRC	*
8301X	5.02	3.68	150	CO	CIRC	*
8302X	6.03	3.93	225	CO	CIRC	*
8302X	48.1	46.55	150	VC	CIRC	*
8303X	47.71	46.55	150	VC	CIRC	*
8303X	6.044		150	CO	CIRC	*
8304X	46.76	45.45	150	VC	CIRC	
8305X	47.491		UNK	UNK	UNK	
8306X	47.259		UNK	UNK	UNK	
830DX			UNK	UNK	UNK	
8401X	51.45	48.93	150	VC	CIRC	*
8401X	9.09	6.85	150	CO	CIRC	*
8402X	7.15	5.67	150	CO	CIRC	
8403X	7.772		150	CO	CIRC	
8405X	5.867	4.349	150	CO	CIRC	
840DX			150	CO	CIRC	
841DX			UNK	UNK	UNK	
842DX			UNK	UNK	UNK	
8501X	10.48	8.91	150	VC	CIRC	*
8501X	40.56		UNK	UNK	UNK	*
8502X	10.57	9.09	150	VC	CIRC	*
8502X	39.414		UNK	UNK	UNK	*
8503X	10.72	8.95	100	PVC	CIRC	
8504X	10.67	9.04	150	VC	CIRC	
8505X	10.54		150	VC	CIRC	
8507X	16.46	13.22	150	VC	CIRC	
8508X	11.93	10.4	150	PF	CIRC	
8509X	9.68	8.46	150	VC	CIRC	
8510X	9.69	7.16	150	VC	CIRC	
8511X			150	VC	CIRC	
8601X	17.37	14.54	300	VC	CIRC	*
8601X	44.03	42.29	150	VC	CIRC	*
8602X	18.22	15.52	150	VC	CIRC	
8603X	18.42	16.52	150	VC	CIRC	
8604X	17.05	15.39	150	VC	CIRC	
8605X	19.88	14.88	300	VC	CIRC	
8606X	19.05	16.77	150	VC	CIRC	
8607X	19.77	17.69	150	VC	CIRC	
8608X	17.44	15.37	150	VC	CIRC	
8609X	18.61	16.98	150	VC	CIRC	
8610X	20.358		150	VC	CIRC	
8611X	15.3	14.1	100	PF	CIRC	
8612X			150	VC	CIRC	
8701X	47.71	45.64	150	VC	CIRC	*
8701X	24.2		150	VC	CIRC	*
8702X	26.38		150	VC	CIRC	*
8702X	47.6	46.27	150	VC	CIRC	*
8703X	45.14	42.8	150	VC	CIRC	*
8703X	24.36	22.4	150	VC	CIRC	*
8704X	24.1	23.11	150	VC	CIRC	*
8704X	45.27	43.3	150	VC	CIRC	*
8705X	24		150	VC	CIRC	
8706X	22.03	18.59	150	VC	CIRC	
8707X	21.99		150	VC	CIRC	
8708X	24.15	21.57	150	VC	CIRC	
8709X	21.994		150	VC	CIRC	
8710X	23.933		150	VC	CIRC	
8711X	26.941		150	VC	CIRC	
8712X	22.872		150	VC	CIRC	
8801X	49.692		UNK	UNK	UNK	*
8801X	26.92	25.9	150	VC	CIRC	*
8802X	25.84	24.12	150	VC	CIRC	
8803X	25.16	22.71	150	VC	CIRC	
8804X	25.86	25.07	150	VC	CIRC	
8805X	25.1	24.1	100	VC	CIRC	
8901X	50.326		UNK	UNK	UNK	*
8901X			225	VC	CIRC	*
8901X	3.74		UNK	UNK	UNK	*
8902X			UNK	UNK	CIRC	*
8902X	3.56	0.29	225	CO	CIRC	*
8903X			UNK	UNK	CIRC	
8904X			UNK	UNK	CIRC	
9001X	33.31	31.63	150	VC	CIRC	*
9001X	3.1	1.58	150	VC	CIRC	*
9002X		−2.17	150	VC	CIRC	
9003X			UNK	UNK	UNK	
9004X			100	VC	CIRC	
9005X			100	VC	CIRC	
9006X			150	VC	CIRC	
9007X			100	VC	CIRC	
9008X			150	VC	CIRC	
9009X			150	VC	CIRC	
9010X			100	VC	CIRC	
9011X			150	VC	CIRC	
9012X			100	VC	CIRC	
9013X			100	VC	CIRC	
9014X			100	VC	CIRC	
9015X			150	VC	CIRC	
9016X			100	VC	CIRC	
9017X			150	VC	CIRC	
9018X			100	VC	CIRC	
9019X			150	VC	CIRC	
9101X	3.506		UNK	UNK	UNK	*
9101X			UNK	UNK	UNK	*
9102X	43.827		UNK	UNK	UNK	
9103X			100	VC	CIRC	
9201X	3.619		UNK	UNK	UNK	*
9201X	45.31		150	VC	CIRC	*
9202X	45.66	43.77	150	VC	CIRC	
9203X	44.76		150	VC	CIRC	
9204X	44.96	43.52	150	VC	CIRC	
9205X	43.099		UNK	UNK	UNK	
9206X	42.843		UNK	UNK	UNK	
9207X	45.202		UNK	UNK	UNK	
9208X	45.976		UNK	UNK	UNK	
9301X	44.69		150	VC	CIRC	*

LINE STYLES / COLOURS

Brown: Foul; Foul Syphon Sewer; Foul Vacuum Main; Foul Rising Main
Red: Combined; Combined Syphon Sewer; Combined Rising Main; Lateral Drain
Orange: Building Over Agreement Area
Dark Blue: Treated Effluent
Purple: Sludge; Sewer Catchment; Section 104 Area
Light Blue: Surface Water; Surface Water Rising Main
Yellow: Private
Green: Access Shaft; Decommissioned

MATERIALS

AK Alkathene; BAC Bonded Asbestos Cement; BRC Brick (Common); BRE Brick (Engineering); CC Concrete Box Culvert; CI Cast Iron; CO Concrete (In-Situ); CP Concrete (Pre-Cast); CSB Concrete Segments (bolted); CSU Concrete Segments (unbolted); DI Ductile Iron; GRC Glass Reinforced Concrete; GRP Glass Reinforced Plastic; MAC Masonry in regular Courses; MAR Masonry in random Courses; PE Polyethylene; PF Pitch Fibre; PP Polypropylene; PVC Polyvinyl Chloride; RPM Reinforced Plastic Matrix; SI Spun Iron; ST Steel; VC Vitrified Clay; XXX Other; ZZZ Unknown

LEGEND - SEWERS

Manhole (SW); Manhole (F&C); Lamp hole (SW); Lamp hole (F&C); Pumping Station (SW); Pumping Station (F&C); Side entry manhole (SW); Side entry manhole (F&C); Blind shaft (SW); Blind shaft (F&C); Ejector station (SW); Ejector station (F&C); Watertight door (SW); Watertight door (F&C); Flushing ch. Mn-e (SW); Flushing ch. Mn-e (F&C); Flushing ch. No-e (SW); Flushing ch. No-e (F&C); Demarcation Chamber

Washout (SW); Washout (F&C); Rodding Eye (SW); Rodding Eye (F&C); Gauging point (SW); Gauging point (F&C); Intercept chamber (SW); Intercept chamber (F&C); Storm Tank (SW); Storm Tank (F&C); Vortex chamber (SW); Vortex chamber (F&C); Label ellipse; Dummy/S24 manhole; Outfall; Penstock chamber; Damboards; Storm Overflow; Backdrop manhole

Other (s); Other; Change in sewer (s); Change in sewer; Reflux valve; Flap valve; Cascade; Anode; Valve; Closed Valve; Air Valve; Hatch box (SW); Hatch box (F&C); Direction arrow; Emptying valve; Catchpit; Soakaway; Inlet; Balancing Pond

Wastewater treatment works; Marine treatment works; Outfall headworks; Vent; Vent column; Tidal storage tank; Blank end; Head of Public Sewer; Micro Pumping Station

SHAPES (S)

A Arched; B Barrel; C Circular; E Egg; H Horseshoe; R Rectangular; S Square; T Trapezoidal; U U Shape; X Other

NODE REFERENCING SYSTEM

1st digit: hundred metre easting identifier
2nd digit: hundred metre northing identifier
sewer type identifier
3rd digit: 0-4 = Foul/Combined
5-9 = Surface Water
4th digit: next sequential node

WARNING: BAC pipes are constructed of Bonded Asbestos Cement

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

O.S. Ref.	TR1760NW	Drawn by:	goswama
Scale:	1:2500	Date:	04/07/2013

Title: 156222_Sturry Hill, Sturry,Can

N

Southern Water

The information contained on this plan is provided as a guide to the approximate position of existing public sewers. The accuracy thereof cannot be guaranteed.

THIS INFORMATION MUST BE TREATED WITH CAUTION AND THE ACTUAL POSITION OF THE PUBLIC SEWERS MUST BE ESTABLISHED ON SITE, IN ALL CASES.

Southern Water must be informed before lifting manhole covers or excavating trial holes.

Appendix K Development Foul Drainage Drawings

NOTES

1. This drawing must be read as indicative only and is subject to detailed development design.
2. The foul water strategy depicted on this drawing is preliminary only and indicates design intent.
3. Designed depth and diameters will be subject to variation upon detailed development design. Pipes shown in this drawing are 100mm &150mm in diameter.
4. Designed strategy is subject to Southern Water approval.
5. Stated cover levels are for hydraulic assessment and should not be relied upon.

KEY

- PN15.000 1:78 — Foul water sewer and details - Network 1
- PN32.004 1:13 — Foul water sewer and details - Network 2
- F94 CL44.050 IL41.732 — Foul water manhole and details - Network 1
- F143 CL43.250 IL39.726 — Foul water manhole and details - Network 2
- Site boundary
- FW — Existing Foul sewer
- Proposed Foul sewer Diversion Route
- GAS Main
- Foul Pumping Station

Rev	Amendments	Drn	Chk	App	Date
B	Amended to suit revised masterplan	DK	SS	GC	Jan 19
A	Amended masterplan added	DK	SS	GC	April 18

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Job Title

Land at Broad Oak Farm Sturry, Canterbury

Drawing Title

Proposed Overall Foul Drainage Strategy

Client

Barrat David Wilson Homes

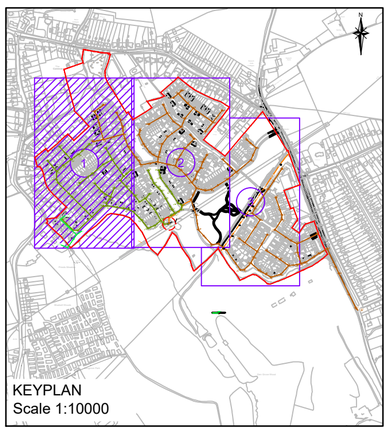
Scale	Date	Designed
1:1000 @A1	April 18	DK
Drawn	**Checked**	**Approved**
DK	SPS	GAC
Job No	**Drawing No**	**Rev**
13-037	13-037-041	B

NOTES

1. This drawing must be read as indicative only and is subject to detailed development design.
2. The foul water strategy depicted on this drawing is preliminary only and indicates design intent.
3. Designed depth and diameters will be subject to variation upon detailed development design. Pipes shown in this drawing are 100mm & 150mm in diameter.
4. Designed strategy is subject to Southern Water approval.
5. Stated cover levels are for hydraulic assessment and should not be relied upon.
6. Diversion route shown is indicative only. The cover levels, invert levels of the manholes located within the existing sewer run should be confirmed by site survey.

KEY

- PN15.000 1:78 — Foul water sewer and details - Network 1
- PN32.004 1:13 — Foul water sewer and details - Network 2
- F94 CL44.050 IL41.732 — Foul water manhole and details - Network 1
- F143 CL43.250 IL39.726 — Foul water manhole and details - Network 2
- Site boundary
- FW — Existing Foul sewer
- Proposed Foul sewer Diversion Route
- GAS Main
- Foul Pumping Station



CONTINUED ON DRAWING 13-037-043

Rev	Amendments	Drn	Chk	App	Date
C	Amended to suit revised layout	DK	SS	GC	Jan 19
B	Foul sewer diversion route added	DK	SS	GC	June18
A	Amended masterplan added	DK	SS	GC	April 18

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Job Title
Land at Broad Oak Farm
Sturry, Canterbury

Drawing Title
Proposed Foul Drainage Strategy - Sheet 1 of 3

Client
Barrat David Wilson Homes

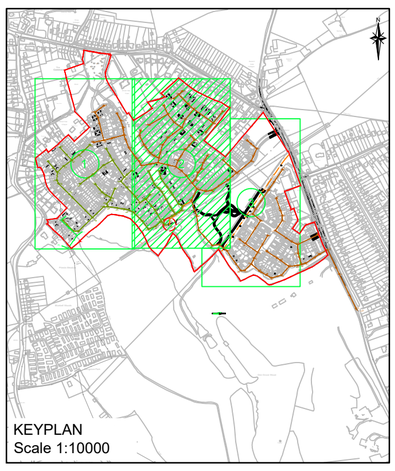
Scale	Date	Designed
1:500 @ A1	April 18	DK
Drawn	Checked	Approved
DK	SPS	GAC
Job No	Drawing No	Rev
13-037	13-037-042	C

NOTES

1. This drawing must be read as indicative only and is subject to detailed development design.
2. The foul water strategy depicted on this drawing is preliminary only and indicates design intent.
3. Designed depth and diameters will be subject to variation upon detailed development design. Pipes shown in this drawing are 100mm &150mm in diameter.
4. Designed strategy is subject to Southern Water approval.
5. Stated cover levels are for hydraulic assessment and should not be relied upon.
6. Refer to drawing 13-037-040 for details of the pumping station compound.

KEY

- PN15.000 1:78 — Foul water sewer and details - Network 1
- PN32.004 1:13 — Foul water sewer and details - Network 2
- F94 CL44.050 IL41.732 — Foul water manhole and details - Network 1
- F143 CL43.250 IL39.726 — Foul water manhole and details - Network 2
- Site boundary
- FW — Existing Foul sewer
- Proposed Foul sewer Diversion Route
- GAS Main
- Foul Pumping Station



CONTINUED ON DRAWING 13-037-042

CONTINUED ON DRAWING 13-037-044

15m buffer zone

Rev	Amendments	Drn	Chk	App	Date
B	Amended to suit revised masterplan	DK	SS	GC	Jan 19
A	Amended masterplan	DK	SS	GC	April 18

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Job Title
Land at Broad Oak Farm
Sturry, Canterbury

Drawing Title
Proposed Foul Drainage Strategy - Sheet 2 of 3

Client
Barratt David Wilson Homes

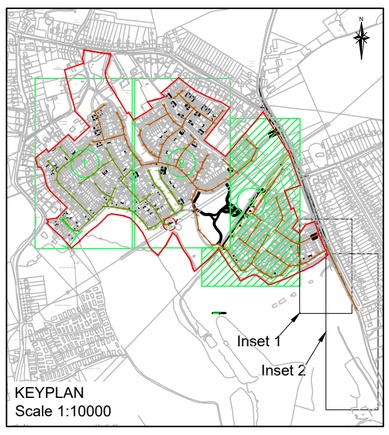
Scale	Date	Designed
1:500 @ A1	Jan 19	DK
Drawn	Checked	Approved
DK	SPS	GAC
Job No	Drawing No	Rev
13-037	13-037-043	B

NOTES

1. This drawing must be read as indicative only and is subject to detailed development design.
2. The foul water strategy depicted on this drawing is preliminary only and indicates design intent.
3. Designed depth and diameters will be subject to variation upon detailed development design. Pipes shown in this drawing are 100mm & 150mm in diameter.
4. Designed strategy is subject to Southern Water approval.
5. Stated cover levels are for hydraulic assessment and should not be relied upon.

KEY

- PN15.000 1:78 — Foul water sewer and details - Network 1
- PN32.004 1:13 — Foul water sewer and details - Network 2
- F94 CL44.050 IL41.732 — Foul water manhole and details - Network 1
- F143 CL43.250 IL39.726 — Foul water manhole and details - Network 2
- Site boundary
- FW — Existing Foul sewer
- Proposed Foul sewer Diversion Route
- GAS Main
- Foul Pumping Station



KEYPLAN
Scale 1:10000

CONTINUED ON ADJACENT PLAN

INSET 1
Scale 1:1000

CONTINUED ON INSET 2

Connection point

INSET 2
Scale 1:1000

CONTINUED INSET 1

Outline Application all matters reserved. Area subject to Reserved Matters Application and layout only shown as indicative.

Rev	Amendments	Drn	Chk	App	Date
B	Amended to suit revised masterplan	DK	SS	GC	Jan 19
A	Amended masterplan	DK	SS	GC	April 18

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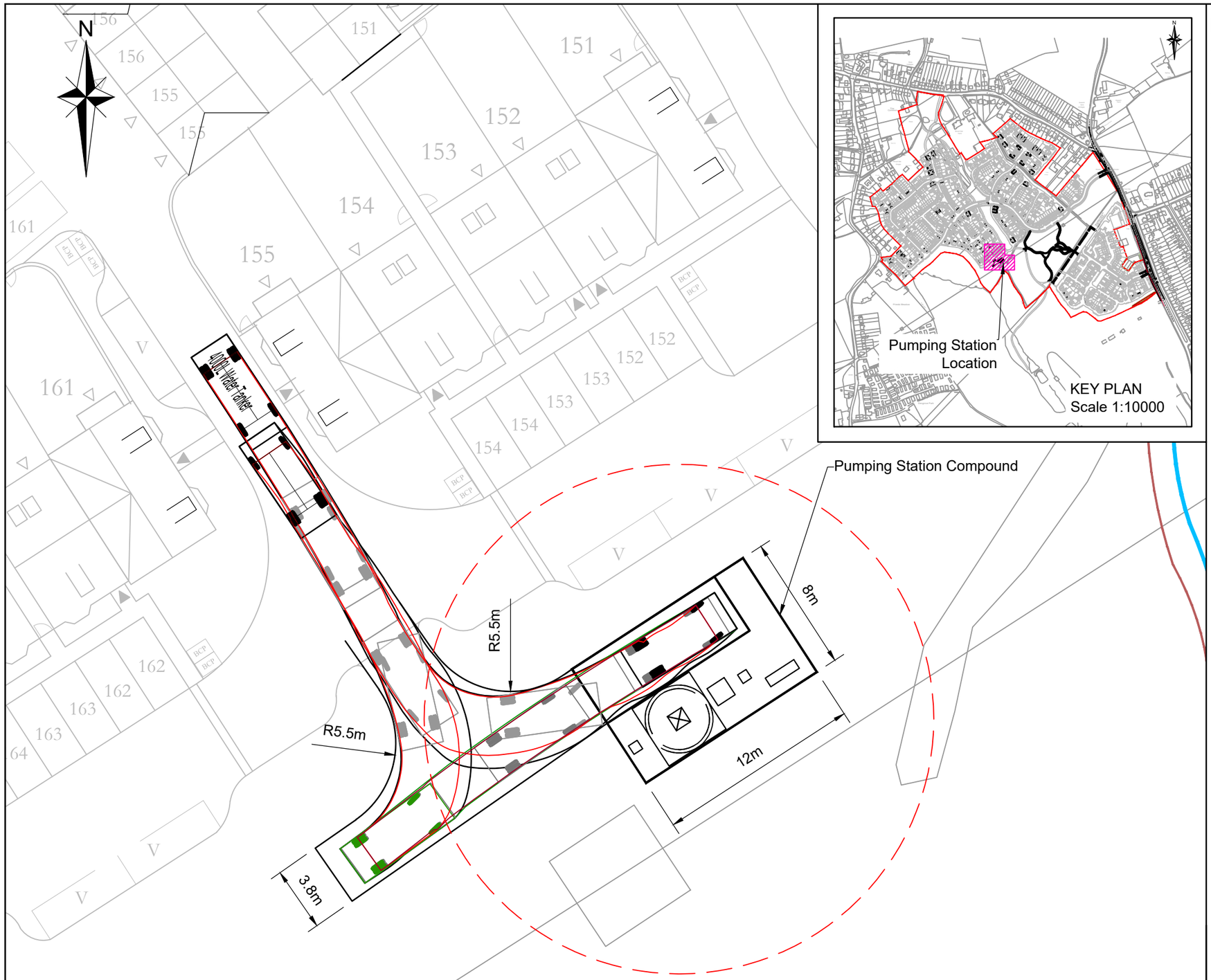
Job Title
Land at Broak Oak Farm
Sturry, Canterbury

Drawing Title
Proposed Foul Drainage Strategy - Sheet 3 of 3

Client
Barratt David Wilson Homes

Scale	Date	Designed
1:500 @ A1	Jan 19	DK
Drawn	Checked	Approved
DK	SPS	GAC
Job No	Drawing No	Rev
13-037	13-037-044	B



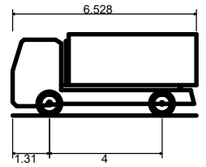
Notes:

1. Do not scale from this drawing.
2. All dimensions are in meters unless stated otherwise.
3. Type 3 Pumping station layout as per Figure D.3 of Sewers for Adoption 7th Edition.

KEY

15m distance to habitable building from the wet well

VEHICLE PROFILE



4000L Water Tanker	
Overall Length	6.528m
Overall Width	2.500m
Overall Body Height	2.877m
Min Body Ground Clearance	0.327m
Track Width	2.393m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	7.850m

Rev	Amendments	Drn	Chk	App	Date
B	Amended masterplan	DK	SS	GC	Jan 19
A	Amended masterplan	DK	SS	GC	April 18

Consulting Engineers Ltd

Issued by ☒ Landmark House, Station Road, Hook, Hampshire, RG27 9HA, 01256 630420

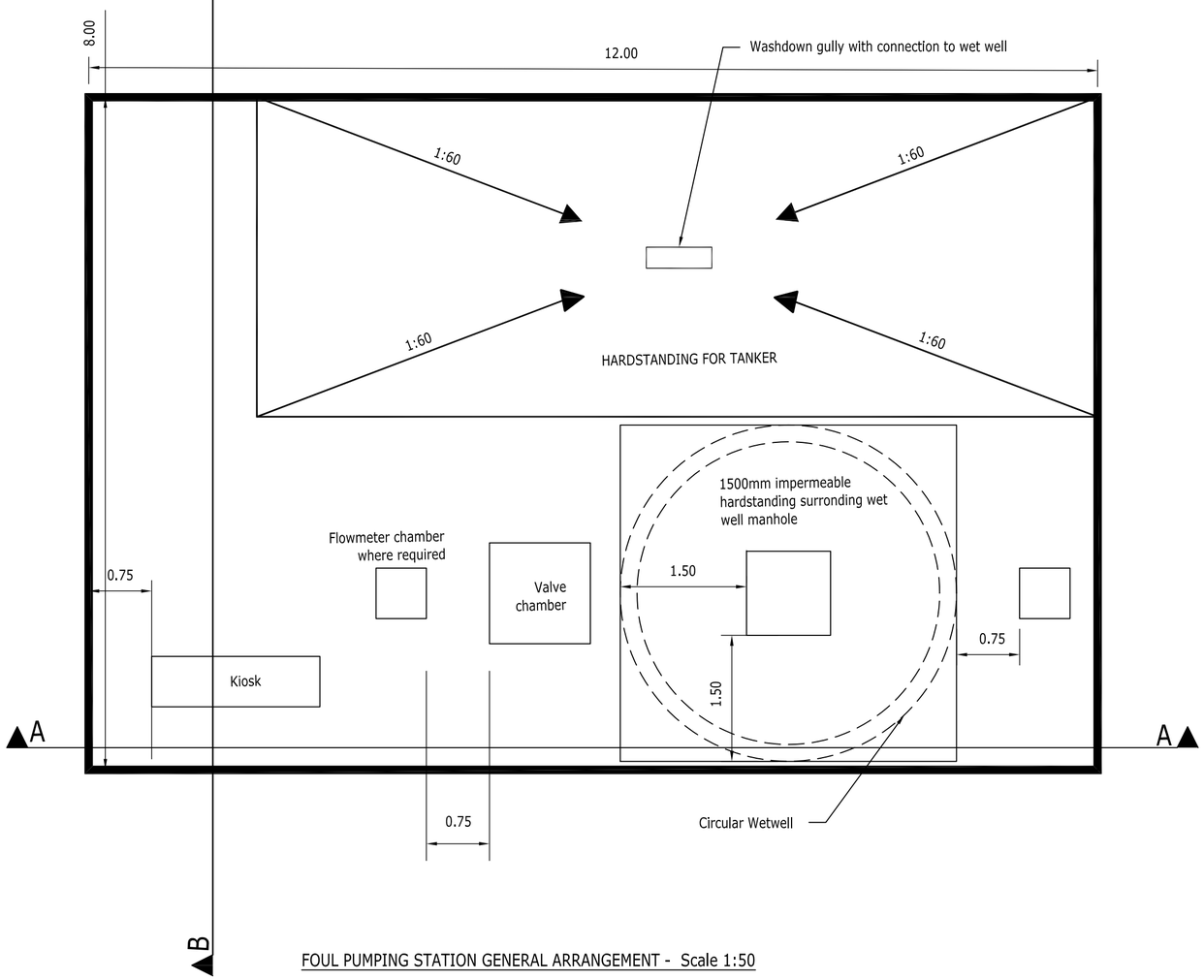
☐ Park House, Park Farm, East Malling Trust Estate, Bradbourne Lane, Aylesford Kent ME20 6SN, 01732 448120

Job Title: Land at Broad Oak Farm, Sturry

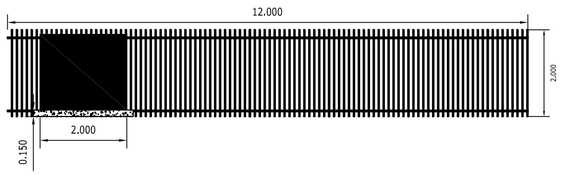
Drawing Title: Proposed Foul Water Pumping Station Compound

Client: Barratt David Wilson Homes

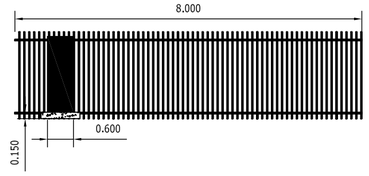
Scale	Date	Designed
1:250 @A3	March 18	N/A
Drawn	**Checked**	**Approved**
DK	SPS	GAC
Job No	**Drawing No**	**Rev**
13-037	13-037-040	B



FOUL PUMPING STATION GENERAL ARRANGEMENT - Scale 1:50



SECTION A-A - Scale 1:100



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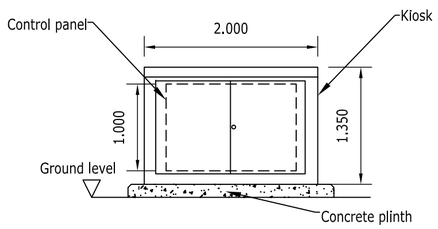
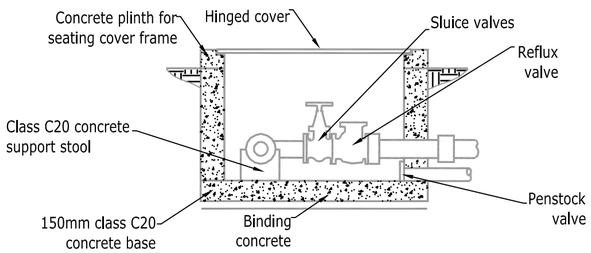
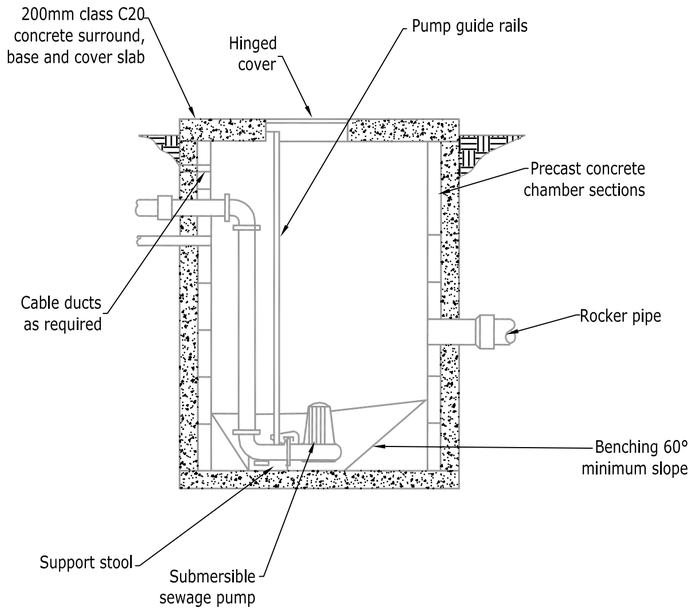


TYPICAL KIOSK SECTION - Scale 1:50



TYPICAL ARRANGEMENT OF A VALVE CHAMBER - Scale NTS



TYPICAL ARRANGEMENT OF A WET WELL - Scale NTS

NOTES

1. This drawing must be read as indicative only and is subject to detailed development design.
2. Refer to drawing 13-037-041 for Preliminary Foul Drainage network details.
3. Detailed Design of the pumping station should be undertaken by the supplier in consultation with Southern Water Services Ltd.

N

Rev	Amendments	Drn	Chk	App	Date

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Job Title
Land at Broad Oak Farm
Sturry

Drawing Title
Pumping Station Details

Client
Barratt David Wilson Homes

Scale	Date	Designed
As shown @A2	April 2018	SS
Drawn	**Checked**	**Approved**
DK	SS	GAC
Job No	**Drawing No**	**Rev**
13-037	13-037-050	-

Appendix L Development Foul Drainage Calculations

Network 01

FOUL SEWERAGE DESIGN

Design Criteria for NETWORK 1A.FWS

Pipe Sizes Network 1 Manhole Sizes Network 1

Industrial Flow (l/s/ha)	0.75	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	1.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	200.00	Maximum Backdrop Height (m)	0.000
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	1.00	Min Slope for Optimisation (1:X)	1000

Designed with Level Soffits

Network Design Table for NETWORK 1A.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
1.000	18.022	0.232	77.7	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
1.001	15.478	0.199	77.8	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
1.002	18.882	1.611	11.7	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
2.000	24.068	1.673	14.4	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
3.000	25.270	0.326	77.5	0.000	3	0.0	1.500	o	100	Pipe/Conduit	
3.001	14.049	0.181	77.6	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
3.002	54.418	0.363	149.9	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
2.001	48.038	0.957	50.2	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.003	31.010	0.207	149.8	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.004	29.967	0.200	149.8	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.005	10.077	0.067	150.4	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.006	10.911	0.073	149.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.007	39.557	2.076	19.1	0.000	1	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)
1.000	49.515	0.000	0.0	2	0.0	4	0.14	0.76	5.9	0.0
1.001	49.283	0.000	0.0	3	0.0	5	0.16	0.75	5.9	0.0
1.002	49.084	0.000	0.0	4	0.0	3	0.33	1.95	15.3	0.0
2.000	50.103	0.000	0.0	2	0.0	3	0.24	1.76	13.8	0.0
3.000	49.350	0.000	0.0	3	0.0	5	0.16	0.76	5.9	0.0
3.001	49.024	0.000	0.0	5	0.0	6	0.19	0.76	5.9	0.0
3.002	48.793	0.000	0.0	12	0.0	9	0.19	0.71	12.6	0.1
2.001	48.380	0.000	0.0	18	0.0	8	0.32	1.24	21.9	0.1
1.003	47.423	0.000	0.0	24	0.0	12	0.24	0.71	12.6	0.2
1.004	47.216	0.000	0.0	26	0.0	13	0.25	0.71	12.6	0.2
1.005	47.016	0.000	0.0	27	0.0	13	0.25	0.71	12.6	0.2
1.006	46.949	0.000	0.0	27	0.0	13	0.25	0.72	12.6	0.2
1.007	46.876	0.000	0.0	28	0.0	8	0.51	2.01	35.6	0.2

Network Design Table for NETWORK 1A.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
4.000	34.330	0.935	36.7	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
5.000	27.261	0.442	61.7	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
4.001	55.412	0.714	77.6	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
6.000	10.206	0.434	23.5	0.000	3	0.0	1.500	o	100	Pipe/Conduit	
7.000	15.257	0.197	77.4	0.000	4	0.0	1.500	o	100	Pipe/Conduit	
6.001	30.752	0.205	150.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
6.002	17.340	1.334	13.0	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
4.002	30.376	0.203	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.003	24.540	0.316	77.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
8.000	21.260	0.486	43.7	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
9.000	49.806	0.642	77.6	0.000	10	0.0	1.500	o	150	Pipe/Conduit	
8.001	24.025	0.310	77.5	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
8.002	20.809	1.498	13.9	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
4.004	34.733	0.232	149.7	0.000	3	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)
4.000	48.507	0.000	0.0	2	0.0	3	0.18	1.10	8.6	0.0
5.000	48.014	0.000	0.0	2	0.0	4	0.15	0.85	6.7	0.0
4.001	47.522	0.000	0.0	11	0.0	7	0.23	0.99	17.6	0.1
6.000	48.831	0.000	0.0	3	0.0	4	0.23	1.38	10.8	0.0
7.000	48.594	0.000	0.0	4	0.0	5	0.18	0.76	5.9	0.0
6.001	48.347	0.000	0.0	11	0.0	9	0.19	0.71	12.6	0.1
6.002	48.142	0.000	0.0	16	0.0	6	0.48	2.44	43.1	0.1
4.002	46.808	0.000	0.0	27	0.0	13	0.25	0.71	12.6	0.2
4.003	46.605	0.000	0.0	27	0.0	11	0.31	0.99	17.6	0.2
8.000	48.633	0.000	0.0	2	0.0	3	0.17	1.01	7.9	0.0
9.000	48.789	0.000	0.0	10	0.0	7	0.22	1.00	17.6	0.1
8.001	48.097	0.000	0.0	14	0.0	8	0.25	1.00	17.6	0.1
8.002	47.787	0.000	0.0	15	0.0	6	0.46	2.36	41.7	0.1
4.004	46.289	0.000	0.0	45	0.0	17	0.29	0.71	12.6	0.3

Network Design Table for NETWORK 1A.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
4.005	21.436	0.143	150.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
4.006	31.331	0.209	150.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
10.000	10.622	0.137	77.5	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
10.001	24.057	0.310	77.6	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
10.002	23.442	0.302	77.6	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
10.003	10.690	0.138	77.5	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
10.004	12.557	2.337	5.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
4.007	11.050	0.906	12.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.008	41.266	0.275	150.1	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
11.000	12.000	0.155	77.4	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
11.001	30.308	0.391	77.5	0.000	5	0.0	1.500	o	100	Pipe/Conduit	
11.002	30.997	0.399	77.7	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
11.003	15.451	2.430	6.4	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.009	16.736	0.112	150.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.010	15.272	0.102	150.0	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
1.011	22.073	0.147	150.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
12.000	18.872	0.243	77.7	0.000	4	0.0	1.500	o	100	Pipe/Conduit	
12.001	14.574	0.188	77.5	0.000	4	0.0	1.500	o	100	Pipe/Conduit	
12.002	11.499	0.148	77.7	0.000	2	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)
4.005	46.057	0.000	0.0	49	0.0	17	0.30	0.71	12.6	0.3
4.006	45.914	0.000	0.0	53	0.0	18	0.31	0.71	12.6	0.4
10.000	48.980	0.000	0.0	1	0.0	3	0.11	0.76	5.9	0.0
10.001	48.843	0.000	0.0	3	0.0	5	0.16	0.76	5.9	0.0
10.002	48.533	0.000	0.0	5	0.0	6	0.19	0.76	5.9	0.0
10.003	48.231	0.000	0.0	6	0.0	6	0.20	0.76	5.9	0.0
10.004	48.043	0.000	0.0	6	0.0	3	0.45	3.80	67.1	0.0
4.007	45.705	0.000	0.0	59	0.0	11	0.76	2.52	44.5	0.4
1.008	44.800	0.000	0.0	91	0.0	23	0.37	0.71	12.6	0.6
11.000	47.950	0.000	0.0	2	0.0	4	0.14	0.76	5.9	0.0
11.001	47.795	0.000	0.0	7	0.0	7	0.21	0.76	5.9	0.0
11.002	47.354	0.000	0.0	11	0.0	7	0.23	0.99	17.6	0.1
11.003	46.955	0.000	0.0	13	0.0	5	0.57	3.49	61.7	0.1
1.009	44.525	0.000	0.0	106	0.0	25	0.38	0.71	12.6	0.7
1.010	44.413	0.000	0.0	109	0.0	25	0.39	0.71	12.6	0.8
1.011	44.312	0.000	0.0	111	0.0	25	0.39	0.71	12.6	0.8
12.000	47.118	0.000	0.0	4	0.0	5	0.18	0.76	5.9	0.0
12.001	46.875	0.000	0.0	8	0.0	7	0.22	0.76	5.9	0.1
12.002	46.637	0.000	0.0	10	0.0	7	0.22	0.99	17.6	0.1

Network Design Table for NETWORK 1A.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
12.003	17.737	0.229	77.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
12.004	10.608	2.096	5.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.012	17.118	0.114	150.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
13.000	28.521	0.368	77.5	0.000	3	0.0	1.500	o	100	Pipe/Conduit	
13.001	30.793	0.397	77.6	0.000	2	0.0	1.500	o	100	Pipe/Conduit	
13.002	43.671	0.613	71.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
14.000	43.078	0.822	52.4	0.000	5	0.0	1.500	o	100	Pipe/Conduit	
13.003	26.360	0.340	77.5	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
13.004	43.954	0.566	77.7	0.000	8	0.0	1.500	o	150	Pipe/Conduit	
13.005	14.176	0.183	77.5	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
13.006	20.718	1.439	14.4	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.013	29.113	0.194	150.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.014	38.007	0.253	150.0	0.000	0	4.5	1.500	o	150	Pipe/Conduit	
1.015	33.597	0.224	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.016	46.556	0.310	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.017	15.366	0.102	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.018	23.839	0.159	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.019	55.576	0.371	150.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
1.020	8.306	0.055	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.021	21.746	0.145	150.0	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)
12.003	46.539	0.000	0.0	10	0.0	7	0.22	1.00	17.6	0.1
12.004	46.310	0.000	0.0	10	0.0	4	0.56	3.91	69.1	0.1
1.012	44.164	0.000	0.0	123	0.0	27	0.40	0.71	12.6	0.9
13.000	48.056	0.000	0.0	3	0.0	5	0.16	0.76	5.9	0.0
13.001	47.688	0.000	0.0	5	0.0	6	0.19	0.76	5.9	0.0
13.002	47.241	0.000	0.0	5	0.0	5	0.18	1.04	18.4	0.0
14.000	47.450	0.000	0.0	5	0.0	5	0.22	0.92	7.2	0.0
13.003	46.578	0.000	0.0	12	0.0	8	0.24	1.00	17.6	0.1
13.004	46.238	0.000	0.0	20	0.0	10	0.28	0.99	17.6	0.1
13.005	45.672	0.000	0.0	22	0.0	10	0.29	1.00	17.6	0.2
13.006	45.489	0.000	0.0	23	0.0	7	0.52	2.32	40.9	0.2
1.013	44.050	0.000	0.0	148	0.0	29	0.43	0.71	12.6	1.0
1.014	43.856	0.000	4.5	148	0.0	70	0.69	0.71	12.6	5.5
1.015	43.603	0.000	4.5	148	0.0	70	0.69	0.71	12.6	5.5
1.016	43.379	0.000	4.5	148	0.0	70	0.69	0.71	12.6	5.5
1.017	43.068	0.000	4.5	148	0.0	70	0.69	0.71	12.6	5.5
1.018	42.966	0.000	4.5	148	0.0	70	0.69	0.71	12.6	5.5
1.019	42.807	0.000	4.5	152	0.0	70	0.69	0.71	12.6	5.6
1.020	42.436	0.000	4.5	152	0.0	70	0.69	0.71	12.6	5.6
1.021	42.381	0.000	4.5	152	0.0	70	0.69	0.71	12.6	5.6

Network Design Table for NETWORK 1A.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
15.000	56.986	0.734	77.6	0.000	0	0.6	1.500	o	100	Pipe/Conduit	
15.001	53.653	0.691	77.6	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
15.002	12.479	0.161	77.5	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
15.003	23.873	0.308	77.5	0.000	11	0.0	1.500	o	150	Pipe/Conduit	
15.004	63.335	0.867	73.1	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
16.000	15.571	1.268	12.3	0.000	9	0.0	1.500	o	100	Pipe/Conduit	
15.005	34.606	0.546	63.4	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
17.000	45.080	1.351	33.4	0.000	6	0.0	1.500	o	100	Pipe/Conduit	
15.006	15.374	0.102	150.7	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
15.007	15.183	1.888	8.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.022	24.289	0.162	149.9	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.023	18.977	0.127	149.4	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.024	13.149	0.088	149.4	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.025	23.737	0.158	150.2	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.026	27.004	0.230	117.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
18.000	38.228	1.256	30.4	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
18.001	23.711	2.108	11.2	0.000	2	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)
15.000	47.632	0.000	0.6	0	0.0	22	0.48	0.76	5.9	0.6
15.001	46.848	0.000	0.6	9	0.0	20	0.47	0.99	17.6	0.7
15.002	46.157	0.000	0.6	18	0.0	21	0.48	1.00	17.6	0.7
15.003	45.996	0.000	0.6	29	0.0	22	0.50	1.00	17.6	0.8
15.004	45.689	0.000	0.6	33	0.0	22	0.51	1.03	18.1	0.8
16.000	46.090	0.000	0.0	9	0.0	5	0.43	1.91	15.0	0.1
15.005	44.772	0.000	0.6	45	0.0	22	0.55	1.10	19.5	0.9
17.000	45.627	0.000	0.0	6	0.0	5	0.27	1.15	9.1	0.0
15.006	44.226	0.000	0.6	54	0.0	29	0.42	0.71	12.6	1.0
15.007	44.124	0.000	0.6	56	0.0	14	1.16	3.10	54.8	1.0
1.022	42.236	0.000	5.1	209	0.0	77	0.72	0.71	12.6	6.6
1.023	42.074	0.000	5.1	211	0.0	77	0.72	0.72	12.6	6.6
1.024	41.947	0.000	5.1	212	0.0	77	0.72	0.72	12.6	6.6
1.025	41.859	0.000	5.1	213	0.0	77	0.72	0.71	12.6	6.6
1.026	41.701	0.000	5.1	214	0.0	72	0.79	0.81	14.3	6.6
18.000	44.885	0.000	0.0	6	0.0	5	0.26	1.59	28.1	0.0
18.001	43.629	0.000	0.0	8	0.0	4	0.39	2.62	46.3	0.1

Network Design Table for NETWORK 1A.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
1.027	19.481	0.130	150.0	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.028	9.571	0.064	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
19.000	51.604	0.434	118.9	0.000	7	0.0	1.500	o	100	Pipe/Conduit	
20.000	42.059	0.890	47.3	0.000	11	0.0	1.500	o	100	Pipe/Conduit	
20.001	10.409	0.069	150.9	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
20.002	28.591	0.191	149.7	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
20.003	45.299	1.290	35.1	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
20.004	15.278	0.247	61.9	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
19.001	20.238	0.135	149.9	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
19.002	26.571	2.995	8.9	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.029	9.570	0.064	149.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
1.030	38.540	0.257	150.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
1.031	21.581	0.144	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.032	62.942	0.420	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.033	88.513	4.543	19.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
1.034	7.193	1.250	5.8	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)
1.027	41.471	0.000	5.1	223	0.0	77	0.72	0.71	12.6	6.6
1.028	41.341	0.000	5.1	223	0.0	77	0.72	0.71	12.6	6.6
19.000	44.891	0.000	0.0	7	0.0	7	0.18	0.61	4.8	0.0
20.000	47.094	0.000	0.0	11	0.0	7	0.29	0.97	7.6	0.1
20.001	46.204	0.000	0.0	14	0.0	10	0.20	0.71	12.6	0.1
20.002	46.135	0.000	0.0	18	0.0	11	0.22	0.71	12.6	0.1
20.003	45.944	0.000	0.0	24	0.0	9	0.39	1.48	26.2	0.2
20.004	44.654	0.000	0.0	27	0.0	11	0.34	1.12	19.7	0.2
19.001	44.407	0.000	0.0	36	0.0	15	0.27	0.71	12.6	0.3
19.002	44.272	0.000	0.0	38	0.0	8	0.73	2.95	52.2	0.3
1.029	41.277	0.000	5.1	262	0.0	79	0.73	0.72	12.6	6.9
1.030	41.213	0.000	5.1	264	0.0	79	0.73	0.71	12.6	6.9
1.031	40.956	0.000	5.1	264	0.0	79	0.73	0.71	12.6	6.9
1.032	40.812	0.000	5.1	264	0.0	79	0.73	0.71	12.6	6.9
1.033	40.393	0.000	5.1	264	0.0	45	1.54	1.99	35.2	6.9
1.034	35.850	0.000	5.1	264	0.0	33	2.38	3.67	64.8	6.9

Free Flowing Outfall Details for NETWORK 1A.FWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.034	99	36.450	34.600	0.000	0	0

Simulation Criteria for NETWORK 1A.FWS

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

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

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	0	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	0.000	Storm Duration (mins)	30
Ratio R	0.000		

Network 02

FOUL SEWERAGE DESIGN

Design Criteria for Foul Network 2

Pipe Sizes Circular Manhole Sizes Adoptable

Industrial Flow (l/s/ha)	0.60	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	1.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	200.00	Maximum Backdrop Height (m)	1.500
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	1.00	Min Slope for Optimisation (1:X)	1000

Designed with Level Soffits

Network Design Table for Foul Network 2

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
22.000	34.251	0.228	150.2	0.000	12	0.0	1.500	o	150	Pipe/Conduit	
22.001	20.590	0.138	149.2	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
23.000	40.387	1.166	34.6	0.000	12	0.0	1.500	o	150	Pipe/Conduit	
22.002	23.118	0.154	150.1	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
22.003	20.363	0.136	149.7	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
24.000	32.748	1.156	28.3	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
22.004	14.647	0.098	149.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
22.005	15.250	0.146	104.5	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
22.006	31.710	1.000	31.7	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
22.007	75.609	2.350	32.2	0.000	14	0.0	1.500	o	150	Pipe/Conduit	
25.000	37.494	0.361	103.9	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
25.001	10.686	0.100	106.9	0.000	2	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)
22.000	49.450	0.000	0.0	12	0.0	9	0.19	0.71	12.6	0.1
22.001	49.222	0.000	0.0	14	0.0	10	0.20	0.72	12.7	0.1
23.000	50.250	0.000	0.0	12	0.0	7	0.31	1.49	26.4	0.1
22.002	49.084	0.000	0.0	30	0.0	14	0.26	0.71	12.6	0.2
22.003	48.930	0.000	0.0	35	0.0	15	0.27	0.71	12.6	0.2
24.000	49.950	0.000	0.0	9	0.0	5	0.30	1.65	29.2	0.1
22.004	48.794	0.000	0.0	45	0.0	17	0.29	0.72	12.6	0.3
22.005	48.696	0.000	0.0	49	0.0	16	0.34	0.86	15.1	0.3
22.006	48.550	0.000	0.0	56	0.0	13	0.54	1.56	27.6	0.4
22.007	47.550	0.000	0.0	70	0.0	14	0.57	1.55	27.4	0.5
25.000	46.861	0.000	0.0	7	0.0	7	0.18	0.86	15.2	0.0
25.001	46.500	0.000	0.0	9	0.0	7	0.19	0.85	15.0	0.1

Network Design Table for Foul Network 2

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
25.002	50.057	1.200	41.7	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
22.008	36.247	0.850	42.6	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
22.009	8.804	0.100	88.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
26.000	24.599	1.100	22.4	0.000	12	0.0	1.500	o	150	Pipe/Conduit	
26.001	9.383	0.400	23.5	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
26.002	13.910	0.500	27.8	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
27.000	15.566	0.400	38.9	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
26.003	13.017	0.300	43.4	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
26.004	11.825	0.300	39.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
26.005	6.814	0.200	34.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
22.010	22.649	0.970	23.3	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
22.011	25.846	0.970	26.6	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
22.012	13.661	0.500	27.3	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
22.013	27.598	1.060	26.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
22.014	22.504	1.400	16.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
22.015	17.558	0.117	150.1	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
22.016	18.358	0.122	150.5	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
28.000	22.558	0.150	150.0	0.000	2	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)
25.002	46.400	0.000	0.0	12	0.0	7	0.29	1.36	24.0	0.1
22.008	45.200	0.000	0.0	86	0.0	17	0.56	1.34	23.8	0.6
22.009	44.350	0.000	0.0	86	0.0	20	0.43	0.93	16.5	0.6
26.000	47.050	0.000	0.0	12	0.0	6	0.36	1.86	32.8	0.1
26.001	45.950	0.000	0.0	14	0.0	6	0.38	1.81	32.1	0.1
26.002	45.550	0.000	0.0	16	0.0	7	0.37	1.67	29.4	0.1
27.000	45.450	0.000	0.0	4	0.0	4	0.21	1.41	24.9	0.0
26.003	45.050	0.000	0.0	21	0.0	9	0.35	1.33	23.5	0.1
26.004	44.750	0.000	0.0	21	0.0	9	0.36	1.40	24.7	0.1
26.005	44.450	0.000	0.0	21	0.0	8	0.38	1.50	26.6	0.1
22.010	44.250	0.000	0.0	108	0.0	16	0.73	1.82	32.1	0.8
22.011	43.280	0.000	0.0	109	0.0	17	0.70	1.70	30.1	0.8
22.012	42.310	0.000	0.0	110	0.0	17	0.70	1.68	29.7	0.8
22.013	41.810	0.000	0.0	112	0.0	17	0.72	1.72	30.4	0.8
22.014	40.750	0.000	0.0	112	0.0	15	0.84	2.19	38.7	0.8
22.015	39.350	0.000	0.0	114	0.0	26	0.39	0.71	12.6	0.8
22.016	39.233	0.000	0.0	117	0.0	26	0.40	0.71	12.6	0.8
28.000	46.850	0.000	0.0	2	0.0	4	0.10	0.71	12.6	0.0

Network Design Table for Foul Network 2

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
29.000	37.839	0.252	150.2	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
29.001	31.738	0.212	149.7	0.000	7	0.0	1.500	o	150	Pipe/Conduit	
29.002	23.829	0.159	149.9	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
30.000	29.997	1.423	21.1	0.000	9	0.0	1.500	o	150	Pipe/Conduit	
29.003	45.788	1.677	27.3	0.000	6	0.0	1.500	o	150	Pipe/Conduit	
28.001	12.816	0.250	51.3	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
28.002	19.050	0.810	23.5	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
28.003	28.975	1.470	19.7	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
28.004	17.586	0.570	30.9	0.000	4	0.0	1.500	o	150	Pipe/Conduit	
28.005	15.868	0.106	150.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
31.000	13.887	1.956	7.1	0.000	1	0.0	1.500	o	100	Pipe/Conduit	
28.006	32.015	0.458	69.9	0.000	5	0.0	1.500	o	150	Pipe/Conduit	
28.007	30.323	3.975	7.6	0.000	8	0.0	1.500	o	150	Pipe/Conduit	
22.017	10.918	0.123	88.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
32.000	32.937	1.600	20.6	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
32.001	13.480	0.200	67.4	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
32.002	11.312	0.180	62.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
32.003	20.028	0.720	27.8	0.000	1	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)
29.000	49.000	0.000	0.0	5	0.0	6	0.14	0.71	12.6	0.0
29.001	48.748	0.000	0.0	12	0.0	9	0.19	0.71	12.6	0.1
29.002	48.536	0.000	0.0	15	0.0	10	0.20	0.71	12.6	0.1
30.000	49.800	0.000	0.0	9	0.0	5	0.34	1.91	33.8	0.1
29.003	48.377	0.000	0.0	30	0.0	9	0.46	1.68	29.7	0.2
28.001	46.700	0.000	0.0	33	0.0	11	0.38	1.23	21.7	0.2
28.002	46.450	0.000	0.0	38	0.0	10	0.52	1.81	32.0	0.3
28.003	45.640	0.000	0.0	42	0.0	10	0.57	1.98	35.0	0.3
28.004	44.170	0.000	0.0	46	0.0	12	0.51	1.58	27.9	0.3
28.005	43.600	0.000	0.0	46	0.0	17	0.30	0.71	12.6	0.3
31.000	45.450	0.000	0.0	1	0.0	2	0.23	2.51	19.7	0.0
28.006	43.494	0.000	0.0	52	0.0	15	0.40	1.05	18.5	0.4
28.007	43.036	0.000	0.0	60	0.0	10	0.89	3.18	56.3	0.4
22.017	39.061	0.000	0.0	177	0.0	28	0.54	0.93	16.4	1.2
32.000	47.600	0.000	0.0	3	0.0	3	0.23	1.94	34.2	0.0
32.001	46.000	0.000	0.0	5	0.0	5	0.19	1.07	18.9	0.0
32.002	45.800	0.000	0.0	5	0.0	5	0.19	1.11	19.5	0.0
32.003	45.620	0.000	0.0	6	0.0	5	0.26	1.67	29.4	0.0

Network Design Table for Foul Network 2

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
32.004	28.942	2.150	13.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
32.005	11.159	1.003	11.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
33.000	18.114	0.400	45.3	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
33.001	38.408	1.750	21.9	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
33.002	32.516	2.150	15.1	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
33.003	9.869	0.250	39.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	
33.004	7.567	0.184	41.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
33.005	17.719	0.969	18.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
32.006	30.308	2.021	15.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	
32.007	11.158	0.838	13.3	0.000	3	0.0	1.500	o	150	Pipe/Conduit	
22.018	11.751	0.103	114.1	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)
32.004	44.900	0.000	0.0	7	0.0	4	0.36	2.40	42.3	0.0
32.005	42.750	0.000	0.0	7	0.0	4	0.38	2.64	46.6	0.0
33.000	47.500	0.000	0.0	2	0.0	3	0.15	1.30	23.0	0.0
33.001	47.100	0.000	0.0	5	0.0	4	0.27	1.88	33.1	0.0
33.002	45.350	0.000	0.0	7	0.0	4	0.34	2.26	39.9	0.0
33.003	43.150	0.000	0.0	8	0.0	6	0.26	1.40	24.7	0.1
33.004	42.900	0.000	0.0	8	0.0	6	0.26	1.37	24.2	0.1
33.005	42.716	0.000	0.0	8	0.0	5	0.34	2.06	36.3	0.1
32.006	41.747	0.000	0.0	17	0.0	6	0.46	2.27	40.1	0.1
32.007	39.726	0.000	0.0	20	0.0	7	0.51	2.41	42.6	0.1
22.018	38.888	0.000	0.0	197	0.0	31	0.51	0.82	14.5	1.4

Free Flowing Outfall Details for Foul Network 2

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
22.018	21	41.300	38.785	38.885	1200	0

Simulation Criteria for Foul Network 2

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

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

Synthetic Rainfall Details

Simulation Criteria for Foul Network 2

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	0	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	0.000	Storm Duration (mins)	30
Ratio R	0.000		