Appendix G

N

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
6. ANY WORKS OUTSIDE RED SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
7. REFER TO ARCHITECTS AND STRUCTURAL ENGINEERS DETAILS FOR BOTH RAISED DPC / FLUSH THRESHOLD DETAIL AND TANKING DETAIL.
8. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY FULLY WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME ONE, SPECIFICATION FOR HIGHWAY WORKS AND THE LOCAL AUTHORITY SPECIFICATION FOR ROAD CONSTRUCTION AND STANDARD DETAILS.
9. THE PUBLIC HIGHWAY AND WORKS WILL BE KEPT CLEAN AND FREE OF DEBRIS BY USE OF WHEEL WASHING FACILITIES AND ROAD SWEEPERS TO THE COUNCIL'S SATISFACTION.
10. ALL SETTING OUT SHALL BE AGREED ON-SITE WITH THE ENGINEER, PRIOR TO THE COMMENCEMENT OF THE WORKS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE LOCAL AUTHORITY PRIOR TO COMMENCING WORKS ON THE HIGHWAY.

CONSTRUCTION NOTES:

1. ALL SOFT SPOTS AND VOIDS SHALL BE REMOVED BEFORE CONSTRUCTION AND REPLACED WITH SUITABLE FILL MATERIAL.
2. ROAD FORMATION TO BE IN ACCORDANCE WITH CLAUSE 616 AND COMPACTED IN ACCORDANCE WITH TABLE THE REQUIREMENTS OF 6/4 OF THE SPECIFICATION FOR HIGHWAY WORKS - SERIES 600 EARTHWORKS.
3. APPROVED RESIDUAL WEEDKILLER, WHICH DOES NOT CONTAIN ATRAZINE OR SIMAZINE, MUST BE APPLIED TO ALL FORMATIONS.
4. ALL CONCRETE AND CEMENT MORTAR MUST BE SULPHATE RESISTING TO BS 4021.
5. ALL CARRIAGEWAY MATERIALS SHALL BE SUPPLIED AND LAID IN ACCORDANCE WITH BS EN 13108-1.
6. ALL MATERIALS IN CARRIAGEWAYS TO BE LAID BY MACHINE.
7. MINIMUM DEPTH OF 450mm CONSTRUCTION IS REQUIRED FOR NON-FROST SUSCEPTIBLE MATERIAL.
8. THE CONTRACTOR MUST VERIFY CBR VALUES ALONG EACH ACCESS ROAD AT 30m INTERVALS, THE RESULTS OF WHICH MUST BE SENT TO THE ENGINEER FOR CONFIRMATION OF THE CARRIAGEWAY CONSTRUCTION SHOWN ON THIS DRAWING, PRIOR TO COMMENCING THE WORKS.

INFORMATION SUMMARY

INFORMATION TYPE	SOURCE	REFERENCE	REVISION & DATE
SITE LAYOUT	PEGASUS GROUP	P24-2268_DE _001_A_003	06/02/26 DRAFT
TOPOGRAPHICAL SURVEY	MK SURVEYS	32595	MAY 2023 -
TREE SURVEY	KEEN CONSULTANTS	2142-KC-XX-Y TREE	JUNE 2023 REV0

KEY

- SITE BOUNDARY
- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- PROPOSED FOUL WATER RISING MAIN
- EXISTING FOUL WATER SEWER & MANHOLE
- EXISTING SURFACE WATER SEWER & MANHOLE
- PCC HEADWALL
- PROPOSED DETENTION BASIN
- PROPOSED PERMANENT POOL OF WATER
- PROPOSED COMMON PERMEABLE PAVING
- PROPOSED BIO-RETENTION FEATURE
- PROPOSED SWALE

0m 5m 25m

Scale: 1:500 @ A1

Rev	Description	Drn	Chk	App	Date
-	FIRST ISSUE	AF	NC	DM	13.02.26

Purpose: DRAFT

Status: NOT YET APPROVED

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

Client: BELLWAY HOMES LTD

Project Title: MONAGHAN MUSHROOMS, THAKEHAM

Drawing Title: CONCEPT DRAINAGE STRATEGY - PLANNING

Drawn by	Checked by	Approved by	Revision
AF	NC	DM	-

Scale: 1:500@A0 Date: JANUARY '26

Drawing Number: 2505500-ACE-XX-XX-DR-C-101

File Location: c:\users\nchalmers\desktop\pm\2505500 - monaghan mushrooms\post-appeal\technical\acad\drawings\2505500-ace-xx-xx-dr-c-101 drainage strategy_ planning.dwg

Appendix H1

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.102	5.00	50.650	1350	510217.869	117309.804	1.425
S2	0.072	5.00	50.575	1200	510199.990	117317.737	1.775
S3	0.024	5.00	50.650	1200	510207.354	117312.920	2.015
S4	0.050	5.00	49.650	1350	510198.830	117287.966	1.575
S5	0.099	5.00	49.500	1350	510192.742	117259.439	1.825
S6	0.020	5.00	49.050	1350	510168.011	117264.856	1.715
S7	0.090	5.00	48.450	1350	510136.486	117276.775	1.575
S8	0.026	5.00	47.500	1350	510125.725	117252.697	1.650
S9	0.048	5.00	47.100	1350	510126.450	117233.579	1.650
S10	0.053	5.00	46.900	1350	510137.466	117216.677	1.650
S11	0.077	5.00	49.750	1350	510222.928	117247.914	1.425
S12	0.060	5.00	49.150	1350	510238.181	117239.052	1.425
S13	0.065	5.00	48.550	1350	510275.499	117224.126	1.425
S14			48.425	1350	510264.141	117224.263	1.425
S15	0.120	5.00	48.325	1350	510251.984	117220.111	1.575
S16	0.041	5.00	47.850	1350	510229.514	117195.840	1.575
S17			47.500	1350	510210.055	117184.735	1.575
S18	0.087	5.00	47.225	1350	510193.715	117178.036	1.575
S19	0.071	5.00	47.300	1200	510178.040	117196.411	1.945
S20			47.150	1350	510167.758	117201.547	2.015
S21			45.900		510157.332	117180.672	1.400
S22			45.900		510126.179	117174.651	1.500
S23			45.900	2100	510113.478	117166.928	1.600
S24	0.139	5.00	45.350	1350	510089.528	117108.538	1.500
S25			44.500	1350	510079.463	117070.476	1.500
S26			44.500	1350	510075.631	117051.794	1.630
S27	0.131	5.00	44.350	1350	510100.203	117046.907	1.650
S28	0.109	5.00	47.125	1350	510203.209	117149.545	1.425
S29			47.300	1200	510218.193	117127.837	1.775
S30	0.084	5.00	46.200	1200	510160.812	117142.303	1.500
S31	0.021	5.00	46.600	1200	510174.809	117136.819	2.050
S32			47.125	1200	510196.228	117124.621	2.820
S33	0.108	5.00	47.000	1200	510205.085	117116.220	2.820
S34	0.114	5.00	46.750	1200	510199.300	117109.988	2.615

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S35	0.174	5.00	45.100	1350	510119.407	117096.317	1.500
S36			45.250	1200	510177.986	117072.109	2.285
S37	0.019	5.00	45.250	1350	510182.085	117066.647	2.505
S38	0.066	5.00	44.700	1350	510185.475	117050.806	2.020
S39			43.800	1350	510168.164	117009.963	1.770
S40			43.000		510162.966	116997.581	1.900
S41	0.244	5.00	50.975	1350	510327.972	117263.441	1.500
S42	0.091	5.00	48.500	1200	510299.910	117200.493	1.575
S43	0.085	5.00	48.250	1200	510287.138	117175.978	1.575
S44	0.117	5.00	47.975	1200	510268.634	117156.631	1.650
S45	0.094	5.00	47.000	1350	510238.052	117112.009	1.650
S46	0.048	5.00	46.775	1350	510248.394	117104.288	1.695
S47	0.223	5.00	48.525	1200	510364.633	117185.808	1.500
S48	0.147	5.00	48.350	1350	510346.623	117147.180	1.575
S49			47.550	1350	510321.771	117125.589	1.575
S50			47.350	1350	510315.443	117114.115	1.575
S51	0.147	5.00	46.725	1200	510312.259	117090.517	2.000
S52			46.500	1350	510266.261	117097.074	2.110
S53	0.230	5.00	46.100	1350	510262.007	117078.469	1.800
S54	0.072	5.00	46.375	1350	510343.342	117086.034	1.425
S55			46.700	1200	510323.878	117088.841	2.025
S56	0.200	5.00	46.375	1200	510321.970	117075.611	1.835
S57			43.750	1350	510292.373	117007.555	2.045
S58	0.108	5.00	44.150	2100	510240.894	117028.789	2.555
S59	0.099	5.00	42.950	1350	510220.675	116981.457	2.070
S60	0.061	5.00	42.950	1350	510203.368	116988.697	2.325
S61			42.700		510188.721	116984.423	2.100
S62			42.200		510148.389	116980.172	1.800
S63			42.200	2700	510134.728	116981.088	1.830
S64			42.000	1200	510132.248	116980.238	1.645

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S3	10.967	0.600	49.225	48.710	0.515	21.3	225	5.06	37.9
2.000	S2	S3	8.800	0.600	48.800	48.710	0.090	97.8	225	5.11	37.7
1.001	S3	S4	26.370	0.600	48.635	48.150	0.485	54.4	300	5.32	37.1
1.002	S4	S5	29.169	0.600	48.075	47.675	0.400	73.0	375	5.55	36.4
1.003	S5	S6	25.317	0.600	47.675	47.335	0.340	74.5	375	5.75	35.8
1.004	S6	S7	33.703	0.600	47.335	46.875	0.460	73.3	375	6.01	35.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.848	113.2	14.0	1.200	1.715	0.102	0.0	53	1.953
2.000	1.322	52.6	9.8	1.550	1.715	0.072	0.0	65	1.016
1.001	2.136	151.0	26.6	1.715	1.200	0.198	0.0	85	1.621
1.002	2.122	234.4	32.6	1.200	1.450	0.248	0.0	94	1.513
1.003	2.101	232.1	44.9	1.450	1.340	0.347	0.0	111	1.638
1.004	2.119	234.0	46.4	1.340	1.200	0.367	0.0	112	1.663

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.005	S7	S8	26.373	0.600	46.875	45.925	0.950	27.8	375	6.14	34.6
1.006	S8	S9	19.132	0.600	45.850	45.450	0.400	47.8	450	6.25	34.4
1.007	S9	S10	20.175	0.600	45.450	45.250	0.200	100.9	450	6.41	33.9
1.008	S10	S20	33.860	0.600	45.250	45.135	0.115	294.4	450	6.89	32.7
3.000	S11	S12	17.641	0.600	48.325	47.725	0.600	29.4	225	5.12	37.7
3.001	S12	S15	23.437	0.600	47.725	46.900	0.825	28.4	225	5.28	37.2
4.000	S13	S14	11.359	0.600	47.125	47.000	0.125	90.9	225	5.14	37.7
4.001	S14	S15	12.846	0.600	47.000	46.900	0.100	128.5	225	5.32	37.1
3.002	S15	S16	33.075	0.600	46.750	46.275	0.475	69.6	375	5.58	36.3
3.003	S16	S17	22.405	0.600	46.275	45.925	0.350	64.0	375	5.74	35.8
3.004	S17	S18	17.660	0.600	45.925	45.650	0.275	64.2	375	5.87	35.4
3.005	S18	S19	24.153	0.600	45.650	45.355	0.295	81.9	375	6.07	34.8
3.006	S19	S20	11.493	0.600	45.355	45.210	0.145	79.3	375	6.17	34.6
1.009	S20	S21	23.334	0.600	45.135	44.500	0.635	36.7	450	7.01	32.4
1.009a	S21	S22	31.730	0.600	44.500	44.400	0.100	317.3	450	7.47	31.4
1.010	S22	S23	14.865	0.600	44.400	44.300	0.100	148.6	450	7.62	31.1
1.011	S23	S24	63.111	0.600	44.300	43.850	0.450	140.2	300	8.42	29.6
1.012	S24	S25	39.370	0.600	43.850	43.000	0.850	46.3	300	8.70	29.1
1.013	S25	S26	19.071	0.600	43.000	42.870	0.130	146.7	300	8.94	28.6
1.014	S26	S27	25.053	0.600	42.870	42.700	0.170	147.4	300	9.27	28.1
1.015	S27	S39	77.353	0.600	42.700	42.180	0.520	148.8	300	10.27	26.6
5.000	S28	S29	26.377	0.600	45.700	45.525	0.175	150.7	225	5.41	36.8
5.001	S29	S33	17.515	0.600	45.525	44.255	1.270	13.8	225	5.50	36.6
6.000	S30	S31	15.033	0.600	44.700	44.550	0.150	100.0	300	5.16	37.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.005	3.450	381.0	57.2	1.200	1.200	0.457	0.0	98	2.514
1.006	2.945	468.4	60.0	1.200	1.200	0.483	0.0	108	2.050
1.007	2.024	321.9	65.1	1.200	1.200	0.531	0.0	137	1.601
1.008	1.179	187.6	69.1	1.200	1.565	0.584	0.0	189	1.093
3.000	2.422	96.3	10.5	1.200	1.200	0.077	0.0	50	1.597
3.001	2.464	98.0	18.4	1.200	1.200	0.137	0.0	65	1.896
4.000	1.372	54.5	8.8	1.200	1.200	0.065	0.0	61	1.015
4.001	1.152	45.8	8.7	1.200	1.200	0.065	0.0	66	0.891
3.002	2.173	240.1	42.2	1.200	1.200	0.322	0.0	106	1.652
3.003	2.267	250.4	47.0	1.200	1.200	0.363	0.0	109	1.755
3.004	2.264	250.0	46.4	1.200	1.200	0.363	0.0	109	1.746
3.005	2.003	221.3	56.6	1.200	1.570	0.450	0.0	129	1.685
3.006	2.036	224.9	65.1	1.570	1.565	0.521	0.0	137	1.770
1.009	3.362	534.7	129.5	1.565	0.950	1.105	0.0	150	2.790
1.009a	1.136	180.6	125.6	0.950	1.050	1.105	0.0	277	1.224
1.010	1.665	264.8	124.3	1.050	1.150	1.105	0.0	217	1.639
1.011	1.325	93.7	118.1	1.300	1.200	1.105	0.0	300	1.342
1.012	2.316	163.7	130.7	1.200	1.200	1.244	0.0	204	2.562
1.013	1.296	91.6	128.7	1.200	1.330	1.244	0.0	300	1.312
1.014	1.293	91.4	126.3	1.330	1.350	1.244	0.0	300	1.309
1.015	1.287	90.9	132.2	1.350	1.320	1.375	0.0	300	1.303
5.000	1.062	42.2	14.5	1.200	1.550	0.109	0.0	91	0.966
5.001	3.542	140.8	14.4	1.550	2.520	0.109	0.0	48	2.289
6.000	1.572	111.1	11.4	1.200	1.750	0.084	0.0	65	1.026

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.001	S31	S32	24.649	0.600	44.550	44.305	0.245	100.6	300	5.42	36.8
6.002	S32	S33	12.208	0.600	44.305	44.180	0.125	97.7	300	5.55	36.4
5.002	S33	S34	8.503	0.600	44.180	44.135	0.045	189.0	300	5.67	36.0
5.003	S34	S37	46.635	0.600	44.135	42.895	1.240	37.6	300	5.98	35.1
7.000	S35	S36	63.384	0.600	43.600	42.965	0.635	99.8	300	5.67	36.0
7.001	S36	S37	6.829	0.600	42.965	42.895	0.070	97.6	300	5.74	35.8
5.004	S37	S38	16.200	0.600	42.745	42.680	0.065	250.0	450	6.19	34.5
5.005	S38	S39	44.360	0.600	42.680	42.030	0.650	68.2	450	6.49	33.8
1.016	S39	S40	13.429	0.600	42.030	41.100	0.930	14.4	450	10.31	26.5
1.016a	S40	S62	22.706	0.600	41.100	40.625	0.475	47.8	450	10.44	26.4
8.000	S41	S42	68.920	0.600	49.475	47.000	2.475	27.8	300	5.38	36.9
8.001	S42	S43	27.643	0.600	46.925	46.675	0.250	110.6	375	5.65	36.1
8.002	S43	S44	26.771	0.600	46.675	46.400	0.275	97.4	375	5.89	35.3
8.003	S44	S45	54.096	0.600	46.325	45.350	0.975	55.5	450	6.22	34.4
8.004	S45	S46	12.906	0.600	45.350	45.080	0.270	47.8	450	6.30	34.2
8.005	S46	S52	19.268	0.600	45.080	44.540	0.540	35.7	450	6.39	34.0
9.000	S47	S48	42.620	0.600	47.025	46.850	0.175	243.5	300	5.71	35.9
9.001	S48	S49	32.921	0.600	46.775	45.975	0.800	41.2	375	5.90	35.3
9.002	S49	S50	13.103	0.600	45.975	45.775	0.200	65.5	375	6.00	35.0
9.003	S50	S51	23.812	0.600	45.775	44.800	0.975	24.4	375	6.11	34.7
9.004	S51	S52	46.463	0.600	44.725	44.540	0.185	251.2	450	6.71	33.2
8.006	S52	S53	19.085	0.600	44.390	44.300	0.090	212.1	600	6.90	32.7
8.007	S53	S58	53.980	0.600	44.300	41.670	2.630	20.5	600	7.07	32.3
10.000	S54	S55	19.665	0.600	44.950	44.750	0.200	98.3	225	5.25	37.3

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
6.001	1.567	110.8	14.0	1.750	2.520	0.105	0.0	71	1.079
6.002	1.591	112.4	13.8	2.520	2.520	0.105	0.0	71	1.091
5.002	1.140	80.6	41.9	2.520	2.315	0.322	0.0	154	1.152
5.003	2.571	181.8	55.3	2.315	2.055	0.436	0.0	113	2.268
7.000	1.573	111.2	22.6	1.200	1.985	0.174	0.0	91	1.241
7.001	1.592	112.5	22.5	1.985	2.055	0.174	0.0	91	1.251
5.004	1.281	203.7	78.5	2.055	1.570	0.629	0.0	194	1.202
5.005	2.463	391.8	84.8	1.570	1.320	0.695	0.0	141	1.981
1.016	5.371	854.2	198.5	1.320	1.450	2.070	0.0	146	4.405
1.016a	2.946	468.5	197.2	1.450	1.125	2.070	0.0	203	2.825
8.000	2.990	211.4	32.5	1.200	1.200	0.244	0.0	79	2.183
8.001	1.722	190.2	43.7	1.200	1.200	0.335	0.0	122	1.409
8.002	1.836	202.8	53.6	1.200	1.200	0.420	0.0	131	1.557
8.003	2.733	434.7	66.8	1.200	1.200	0.537	0.0	118	2.002
8.004	2.946	468.5	78.1	1.200	1.245	0.631	0.0	123	2.209
8.005	3.412	542.6	83.4	1.245	1.510	0.679	0.0	118	2.500
9.000	1.003	70.9	28.9	1.200	1.200	0.223	0.0	133	0.953
9.001	2.831	312.7	47.2	1.200	1.200	0.370	0.0	98	2.062
9.002	2.241	247.5	46.8	1.200	1.200	0.370	0.0	109	1.734
9.003	3.679	406.3	46.4	1.200	1.550	0.370	0.0	85	2.474
9.004	1.278	203.3	62.0	1.550	1.510	0.517	0.0	170	1.128
8.006	1.668	471.6	141.3	1.510	1.200	1.196	0.0	224	1.466
8.007	5.390	1524.1	166.5	1.200	1.880	1.426	0.0	132	3.596
10.000	1.318	52.4	9.7	1.200	1.725	0.072	0.0	65	1.013

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
10.001	S55	S56	13.367	0.600	44.675	44.540	0.135	99.0	300	5.39	36.9
10.002	S56	S57	74.213	0.600	44.540	42.005	2.535	29.3	300	5.81	35.6
10.003	S57	S58	55.686	0.600	41.705	41.670	0.035	1591.0	600	7.36	31.7
8.008	S58	S59	51.470	0.600	41.595	40.880	0.715	72.0	675	7.63	31.1
8.009	S59	S60	18.760	0.600	40.880	40.625	0.255	73.6	675	7.74	30.9
8.010	S60	S61	15.258	0.600	40.625	40.600	0.025	610.3	675	7.98	30.4
8.011	S61	S62	40.555	0.600	40.600	40.400	0.200	202.8	675	8.35	29.7
1.017	S62	S63	13.692	0.600	40.400	40.370	0.030	456.4	675	10.63	26.1
1.018	S63	S64	2.622	0.600	40.370	40.355	0.015	174.8	375	10.66	26.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
10.001	1.580	111.7	9.6	1.725	1.535	0.072	0.0	59	0.975
10.002	2.916	206.1	35.0	1.535	1.445	0.272	0.0	83	2.188
10.003	0.601	170.0	31.2	1.445	1.880	0.272	0.0	173	0.462
8.008	3.091	1106.0	203.0	1.880	1.395	1.806	0.0	194	2.383
8.009	3.057	1094.1	212.6	1.395	1.650	1.905	0.0	200	2.395
8.010	1.053	376.9	215.8	1.650	1.425	1.966	0.0	367	1.087
8.011	1.837	657.2	211.0	1.425	1.125	1.966	0.0	262	1.644
1.017	1.220	436.6	380.8	1.125	1.155	4.036	0.0	491	1.366
1.018	1.367	151.0	380.2	1.455	1.270	4.036	0.0	375	1.385

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.967	21.3	225	Circular	50.650	49.225	1.200	50.650	48.710	1.715
2.000	8.800	97.8	225	Circular	50.575	48.800	1.550	50.650	48.710	1.715
1.001	26.370	54.4	300	Circular	50.650	48.635	1.715	49.650	48.150	1.200
1.002	29.169	73.0	375	Circular	49.650	48.075	1.200	49.500	47.675	1.450
1.003	25.317	74.5	375	Circular	49.500	47.675	1.450	49.050	47.335	1.340
1.004	33.703	73.3	375	Circular	49.050	47.335	1.340	48.450	46.875	1.200
1.005	26.373	27.8	375	Circular	48.450	46.875	1.200	47.500	45.925	1.200
1.006	19.132	47.8	450	Circular	47.500	45.850	1.200	47.100	45.450	1.200
1.007	20.175	100.9	450	Circular	47.100	45.450	1.200	46.900	45.250	1.200
1.008	33.860	294.4	450	Circular	46.900	45.250	1.200	47.150	45.135	1.565
3.000	17.641	29.4	225	Circular	49.750	48.325	1.200	49.150	47.725	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1350	Manhole	Adoptable	S3	1200	Manhole	Adoptable
2.000	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.001	S3	1200	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.002	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.003	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.004	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.005	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.006	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.007	S9	1350	Manhole	Adoptable	S10	1350	Manhole	Adoptable
1.008	S10	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
3.000	S11	1350	Manhole	Adoptable	S12	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.001	23.437	28.4	225	Circular	49.150	47.725	1.200	48.325	46.900	1.200
4.000	11.359	90.9	225	Circular	48.550	47.125	1.200	48.425	47.000	1.200
4.001	12.846	128.5	225	Circular	48.425	47.000	1.200	48.325	46.900	1.200
3.002	33.075	69.6	375	Circular	48.325	46.750	1.200	47.850	46.275	1.200
3.003	22.405	64.0	375	Circular	47.850	46.275	1.200	47.500	45.925	1.200
3.004	17.660	64.2	375	Circular	47.500	45.925	1.200	47.225	45.650	1.200
3.005	24.153	81.9	375	Circular	47.225	45.650	1.200	47.300	45.355	1.570
3.006	11.493	79.3	375	Circular	47.300	45.355	1.570	47.150	45.210	1.565
1.009	23.334	36.7	450	Circular	47.150	45.135	1.565	45.900	44.500	0.950
1.009a	31.730	317.3	450	Circular	45.900	44.500	0.950	45.900	44.400	1.050
1.010	14.865	148.6	450	Circular	45.900	44.400	1.050	45.900	44.300	1.150
1.011	63.111	140.2	300	Circular	45.900	44.300	1.300	45.350	43.850	1.200
1.012	39.370	46.3	300	Circular	45.350	43.850	1.200	44.500	43.000	1.200
1.013	19.071	146.7	300	Circular	44.500	43.000	1.200	44.500	42.870	1.330
1.014	25.053	147.4	300	Circular	44.500	42.870	1.330	44.350	42.700	1.350
1.015	77.353	148.8	300	Circular	44.350	42.700	1.350	43.800	42.180	1.320
5.000	26.377	150.7	225	Circular	47.125	45.700	1.200	47.300	45.525	1.550
5.001	17.515	13.8	225	Circular	47.300	45.525	1.550	47.000	44.255	2.520
6.000	15.033	100.0	300	Circular	46.200	44.700	1.200	46.600	44.550	1.750
6.001	24.649	100.6	300	Circular	46.600	44.550	1.750	47.125	44.305	2.520
6.002	12.208	97.7	300	Circular	47.125	44.305	2.520	47.000	44.180	2.520
5.002	8.503	189.0	300	Circular	47.000	44.180	2.520	46.750	44.135	2.315
5.003	46.635	37.6	300	Circular	46.750	44.135	2.315	45.250	42.895	2.055
7.000	63.384	99.8	300	Circular	45.100	43.600	1.200	45.250	42.965	1.985
7.001	6.829	97.6	300	Circular	45.250	42.965	1.985	45.250	42.895	2.055

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.001	S12	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
4.000	S13	1350	Manhole	Adoptable	S14	1350	Manhole	Adoptable
4.001	S14	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
3.002	S15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
3.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
3.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
3.005	S18	1350	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.006	S19	1200	Manhole	Adoptable	S20	1350	Manhole	Adoptable
1.009	S20	1350	Manhole	Adoptable	S21		Junction	
1.009a	S21		Junction		S22		Junction	
1.010	S22		Junction		S23	2100	Manhole	Adoptable
1.011	S23	2100	Manhole	Adoptable	S24	1350	Manhole	Adoptable
1.012	S24	1350	Manhole	Adoptable	S25	1350	Manhole	Adoptable
1.013	S25	1350	Manhole	Adoptable	S26	1350	Manhole	Adoptable
1.014	S26	1350	Manhole	Adoptable	S27	1350	Manhole	Adoptable
1.015	S27	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
5.000	S28	1350	Manhole	Adoptable	S29	1200	Manhole	Adoptable
5.001	S29	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
6.000	S30	1200	Manhole	Adoptable	S31	1200	Manhole	Adoptable
6.001	S31	1200	Manhole	Adoptable	S32	1200	Manhole	Adoptable
6.002	S32	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
5.002	S33	1200	Manhole	Adoptable	S34	1200	Manhole	Adoptable
5.003	S34	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable
7.000	S35	1350	Manhole	Adoptable	S36	1200	Manhole	Adoptable
7.001	S36	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.004	16.200	250.0	450	Circular	45.250	42.745	2.055	44.700	42.680	1.570
5.005	44.360	68.2	450	Circular	44.700	42.680	1.570	43.800	42.030	1.320
1.016	13.429	14.4	450	Circular	43.800	42.030	1.320	43.000	41.100	1.450
1.016a	22.706	47.8	450	Circular	43.000	41.100	1.450	42.200	40.625	1.125
8.000	68.920	27.8	300	Circular	50.975	49.475	1.200	48.500	47.000	1.200
8.001	27.643	110.6	375	Circular	48.500	46.925	1.200	48.250	46.675	1.200
8.002	26.771	97.4	375	Circular	48.250	46.675	1.200	47.975	46.400	1.200
8.003	54.096	55.5	450	Circular	47.975	46.325	1.200	47.000	45.350	1.200
8.004	12.906	47.8	450	Circular	47.000	45.350	1.200	46.775	45.080	1.245
8.005	19.268	35.7	450	Circular	46.775	45.080	1.245	46.500	44.540	1.510
9.000	42.620	243.5	300	Circular	48.525	47.025	1.200	48.350	46.850	1.200
9.001	32.921	41.2	375	Circular	48.350	46.775	1.200	47.550	45.975	1.200
9.002	13.103	65.5	375	Circular	47.550	45.975	1.200	47.350	45.775	1.200
9.003	23.812	24.4	375	Circular	47.350	45.775	1.200	46.725	44.800	1.550
9.004	46.463	251.2	450	Circular	46.725	44.725	1.550	46.500	44.540	1.510
8.006	19.085	212.1	600	Circular	46.500	44.390	1.510	46.100	44.300	1.200
8.007	53.980	20.5	600	Circular	46.100	44.300	1.200	44.150	41.670	1.880
10.000	19.665	98.3	225	Circular	46.375	44.950	1.200	46.700	44.750	1.725
10.001	13.367	99.0	300	Circular	46.700	44.675	1.725	46.375	44.540	1.535
10.002	74.213	29.3	300	Circular	46.375	44.540	1.535	43.750	42.005	1.445
10.003	55.686	1591.0	600	Circular	43.750	41.705	1.445	44.150	41.670	1.880
8.008	51.470	72.0	675	Circular	44.150	41.595	1.880	42.950	40.880	1.395
8.009	18.760	73.6	675	Circular	42.950	40.880	1.395	42.950	40.625	1.650
8.010	15.258	610.3	675	Circular	42.950	40.625	1.650	42.700	40.600	1.425
8.011	40.555	202.8	675	Circular	42.700	40.600	1.425	42.200	40.400	1.125

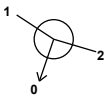
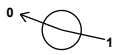
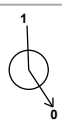
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.004	S37	1350	Manhole	Adoptable	S38	1350	Manhole	Adoptable
5.005	S38	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
1.016	S39	1350	Manhole	Adoptable	S40		Junction	
1.016a	S40		Junction		S62		Junction	
8.000	S41	1350	Manhole	Adoptable	S42	1200	Manhole	Adoptable
8.001	S42	1200	Manhole	Adoptable	S43	1200	Manhole	Adoptable
8.002	S43	1200	Manhole	Adoptable	S44	1200	Manhole	Adoptable
8.003	S44	1200	Manhole	Adoptable	S45	1350	Manhole	Adoptable
8.004	S45	1350	Manhole	Adoptable	S46	1350	Manhole	Adoptable
8.005	S46	1350	Manhole	Adoptable	S52	1350	Manhole	Adoptable
9.000	S47	1200	Manhole	Adoptable	S48	1350	Manhole	Adoptable
9.001	S48	1350	Manhole	Adoptable	S49	1350	Manhole	Adoptable
9.002	S49	1350	Manhole	Adoptable	S50	1350	Manhole	Adoptable
9.003	S50	1350	Manhole	Adoptable	S51	1200	Manhole	Adoptable
9.004	S51	1200	Manhole	Adoptable	S52	1350	Manhole	Adoptable
8.006	S52	1350	Manhole	Adoptable	S53	1350	Manhole	Adoptable
8.007	S53	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
10.000	S54	1350	Manhole	Adoptable	S55	1200	Manhole	Adoptable
10.001	S55	1200	Manhole	Adoptable	S56	1200	Manhole	Adoptable
10.002	S56	1200	Manhole	Adoptable	S57	1350	Manhole	Adoptable
10.003	S57	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
8.008	S58	2100	Manhole	Adoptable	S59	1350	Manhole	Adoptable
8.009	S59	1350	Manhole	Adoptable	S60	1350	Manhole	Adoptable
8.010	S60	1350	Manhole	Adoptable	S61		Junction	
8.011	S61		Junction		S62		Junction	

Pipeline Schedule

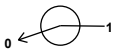
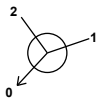
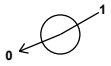
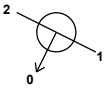
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.017	13.692	456.4	675	Circular	42.200	40.400	1.125	42.200	40.370	1.155
1.018	2.622	174.8	375	Circular	42.200	40.370	1.455	42.000	40.355	1.270

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.017	S62		Junction		S63	2700	Manhole	Adoptable
1.018	S63	2700	Manhole	Adoptable	S64	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	510217.869	117309.804	50.650	1.425	1350		0	1.000	49.225	225
S2	510199.990	117317.737	50.575	1.775	1200		0	2.000	48.800	225
S3	510207.354	117312.920	50.650	2.015	1200		1	2.000	48.710	225
							2	1.000	48.710	225
							0	1.001	48.635	300
S4	510198.830	117287.966	49.650	1.575	1350		1	1.001	48.150	300
							0	1.002	48.075	375
S5	510192.742	117259.439	49.500	1.825	1350		1	1.002	47.675	375
							0	1.003	47.675	375
S6	510168.011	117264.856	49.050	1.715	1350		1	1.003	47.335	375
							0	1.004	47.335	375
S7	510136.486	117276.775	48.450	1.575	1350		1	1.004	46.875	375
							0	1.005	46.875	375
S8	510125.725	117252.697	47.500	1.650	1350		1	1.005	45.925	375
							0	1.006	45.850	450
S9	510126.450	117233.579	47.100	1.650	1350		1	1.006	45.450	450
							0	1.007	45.450	450
S10	510137.466	117216.677	46.900	1.650	1350		1	1.007	45.250	450
							0	1.008	45.250	450

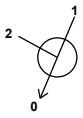
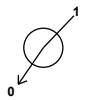
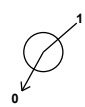
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	510222.928	117247.914	49.750	1.425	1350		0 3.000	48.325	225
S12	510238.181	117239.052	49.150	1.425	1350		1 3.000 0 3.001	47.725 47.725	225 225
S13	510275.499	117224.126	48.550	1.425	1350		0 4.000	47.125	225
S14	510264.141	117224.263	48.425	1.425	1350		1 4.000 0 4.001	47.000 47.000	225 225
S15	510251.984	117220.111	48.325	1.575	1350		1 4.001 2 3.001 0 3.002	46.900 46.900 46.750	225 225 375
S16	510229.514	117195.840	47.850	1.575	1350		1 3.002 0 3.003	46.275 46.275	375 375
S17	510210.055	117184.735	47.500	1.575	1350		1 3.003 0 3.004	45.925 45.925	375 375
S18	510193.715	117178.036	47.225	1.575	1350		1 3.004 0 3.005	45.650 45.650	375 375
S19	510178.040	117196.411	47.300	1.945	1200		1 3.005 0 3.006	45.355 45.355	375 375
S20	510167.758	117201.547	47.150	2.015	1350		1 3.006 2 1.008 0 1.009	45.210 45.135 45.135	375 450 450
S21	510157.332	117180.672	45.900	1.400			1 1.009 0 1.009a	44.500 44.500	450 450
S22	510126.179	117174.651	45.900	1.500			1 1.009a 0 1.010	44.400 44.400	450 450
S23	510113.478	117166.928	45.900	1.600	2100		1 1.010 0 1.011	44.300 44.300	450 300

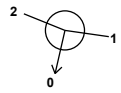
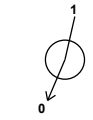
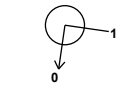
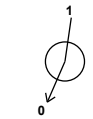
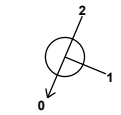
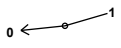
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	510089.528	117108.538	45.350	1.500	1350	1	1.011	43.850	300
						0	1.012	43.850	300
S25	510079.463	117070.476	44.500	1.500	1350	1	1.012	43.000	300
						0	1.013	43.000	300
S26	510075.631	117051.794	44.500	1.630	1350	1	1.013	42.870	300
						0	1.014	42.870	300
S27	510100.203	117046.907	44.350	1.650	1350	1	1.014	42.700	300
						0	1.015	42.700	300
S28	510203.209	117149.545	47.125	1.425	1350	0	5.000	45.700	225
S29	510218.193	117127.837	47.300	1.775	1200	1	5.000	45.525	225
						0	5.001	45.525	225
S30	510160.812	117142.303	46.200	1.500	1200	0	6.000	44.700	300
S31	510174.809	117136.819	46.600	2.050	1200	1	6.000	44.550	300
						0	6.001	44.550	300
S32	510196.228	117124.621	47.125	2.820	1200	1	6.001	44.305	300
						0	6.002	44.305	300
S33	510205.085	117116.220	47.000	2.820	1200	1	5.001	44.255	225
						2	6.002	44.180	300
						0	5.002	44.180	300
S34	510199.300	117109.988	46.750	2.615	1200	1	5.002	44.135	300
						0	5.003	44.135	300
S35	510119.407	117096.317	45.100	1.500	1350	0	7.000	43.600	300
S36	510177.986	117072.109	45.250	2.285	1200	1	7.000	42.965	300
						0	7.001	42.965	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S37	510182.085	117066.647	45.250	2.505	1350		1	7.001	42.895	300
							2	5.003	42.895	300
							0	5.004	42.745	450
S38	510185.475	117050.806	44.700	2.020	1350		1	5.004	42.680	450
							0	5.005	42.680	450
S39	510168.164	117009.963	43.800	1.770	1350		1	5.005	42.030	450
							2	1.015	42.180	300
							0	1.016	42.030	450
S40	510162.966	116997.581	43.000	1.900			1	1.016	41.100	450
							0	1.016a	41.100	450
S41	510327.972	117263.441	50.975	1.500	1350		0	8.000	49.475	300
S42	510299.910	117200.493	48.500	1.575	1200		1	8.000	47.000	300
							0	8.001	46.925	375
S43	510287.138	117175.978	48.250	1.575	1200		1	8.001	46.675	375
							0	8.002	46.675	375
S44	510268.634	117156.631	47.975	1.650	1200		1	8.002	46.400	375
							0	8.003	46.325	450
S45	510238.052	117112.009	47.000	1.650	1350		1	8.003	45.350	450
							0	8.004	45.350	450
S46	510248.394	117104.288	46.775	1.695	1350		1	8.004	45.080	450
							0	8.005	45.080	450
S47	510364.633	117185.808	48.525	1.500	1200		0	9.000	47.025	300
S48	510346.623	117147.180	48.350	1.575	1350		1	9.000	46.850	300
							0	9.001	46.775	375
S49	510321.771	117125.589	47.550	1.575	1350		1	9.001	45.975	375
							0	9.002	45.975	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S50	510315.443	117114.115	47.350	1.575	1350	 1	9.002	45.775	375
						0	9.003	45.775	375
S51	510312.259	117090.517	46.725	2.000	1200	 1	9.003	44.800	375
						0	9.004	44.725	450
S52	510266.261	117097.074	46.500	2.110	1350	1	9.004	44.540	450
						 2	8.005	44.540	450
						0	8.006	44.390	600
S53	510262.007	117078.469	46.100	1.800	1350	 1	8.006	44.300	600
						0	8.007	44.300	600
S54	510343.342	117086.034	46.375	1.425	1350				
						0	10.000	44.950	225
S55	510323.878	117088.841	46.700	2.025	1200	1	10.000	44.750	225
									
						0	10.001	44.675	300
S56	510321.970	117075.611	46.375	1.835	1200	 1	10.001	44.540	300
						0	10.002	44.540	300
S57	510292.373	117007.555	43.750	2.045	1350	 1	10.002	42.005	300
						0	10.003	41.705	600
S58	510240.894	117028.789	44.150	2.555	2100	 1	10.003	41.670	600
						2	8.007	41.670	600
						0	8.008	41.595	675
S59	510220.675	116981.457	42.950	2.070	1350	 1	8.008	40.880	675
						0	8.009	40.880	675
S60	510203.368	116988.697	42.950	2.325	1350	1	8.009	40.625	675
									
						0	8.010	40.625	675
S61	510188.721	116984.423	42.700	2.100		1	8.010	40.600	675
									
						0	8.011	40.600	675
S62	510148.389	116980.172	42.200	1.800		1	8.011	40.400	675
						 2	1.016a	40.625	450
						0	1.017	40.400	675

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S63	510134.728	116981.088	42.200	1.830	2700	1	1.017	40.370	675
									
						0	1.018	40.370	375
S64	510132.248	116980.238	42.000	1.645	1200	1	1.018	40.355	375
									

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

Storm Durations

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

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

Node S23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.300	Product Number	CTL-SHE-0060-1800-1300-1800
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.8	Min Node Diameter (mm)	1200

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	40.370	Product Number	CTL-SHE-0190-1980-1530-1980
Design Depth (m)	1.530	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.8	Min Node Diameter (mm)	1800

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	41.000	Product Number	CTL-SCU-0216-4360-0900-4360
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	43.6	Min Node Diameter (mm)	1200

Node S22 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	44.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	7980

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	706.8	706.8	1.200	1491.0	1503.2	1.500	1723.0	1739.0

Node S62 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	40.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	336

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	748.0	748.0	1.500	1830.0	1845.9	1.800	2089.0	2109.2

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	18	49.280	0.055	13.6	0.1586	0.0000	OK
30 minute summer	S2	18	48.869	0.069	9.6	0.1348	0.0000	OK
30 minute summer	S3	18	48.723	0.088	26.4	0.1200	0.0000	OK
30 minute summer	S4	18	48.170	0.095	33.1	0.1966	0.0000	OK
30 minute summer	S5	18	47.793	0.118	46.3	0.2964	0.0000	OK
30 minute summer	S6	18	47.457	0.122	48.9	0.2024	0.0000	OK
30 minute summer	S7	18	46.980	0.105	60.6	0.2697	0.0000	OK
30 minute summer	S8	18	45.964	0.114	63.3	0.1998	0.0000	OK
30 minute summer	S9	19	45.605	0.155	69.5	0.3129	0.0000	OK
30 minute summer	S10	19	45.452	0.202	76.1	0.4186	0.0000	OK
30 minute summer	S11	18	48.374	0.049	10.2	0.1238	0.0000	OK
30 minute summer	S12	18	47.793	0.068	18.2	0.1538	0.0000	OK
30 minute summer	S13	18	47.188	0.063	8.6	0.1475	0.0000	OK
30 minute summer	S14	18	47.069	0.069	8.6	0.0987	0.0000	OK
30 minute summer	S15	18	46.859	0.109	42.8	0.3220	0.0000	OK
30 minute summer	S16	18	46.392	0.117	48.3	0.2276	0.0000	OK
30 minute summer	S17	18	46.042	0.117	48.2	0.1676	0.0000	OK
30 minute summer	S18	18	45.789	0.139	59.6	0.3524	0.0000	OK
30 minute summer	S19	18	45.514	0.159	68.5	0.2952	0.0000	OK
30 minute summer	S20	19	45.293	0.158	144.8	0.2267	0.0000	OK
30 minute summer	S21	19	44.780	0.280	145.3	0.0000	0.0000	OK
960 minute winter	S22	945	44.744	0.344	19.6	281.4861	0.0000	OK
960 minute winter	S23	915	44.749	0.449	7.9	1.5537	0.0000	SURCHARGED
30 minute summer	S24	18	43.918	0.068	18.8	0.2227	0.0000	OK
30 minute summer	S25	18	43.095	0.095	18.6	0.1359	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	13.6	1.865	0.120	0.0800	
30 minute summer	S2	2.000	S3	9.6	0.969	0.183	0.0872	
30 minute summer	S3	1.001	S4	26.4	1.587	0.175	0.4390	
30 minute summer	S4	1.002	S5	33.1	1.289	0.141	0.7515	
30 minute summer	S5	1.003	S6	46.2	1.529	0.199	0.7655	
30 minute summer	S6	1.004	S7	48.6	1.737	0.208	0.9442	
30 minute summer	S7	1.005	S8	59.8	2.476	0.157	0.6388	
30 minute summer	S8	1.006	S9	63.2	1.588	0.135	0.7659	
30 minute summer	S9	1.007	S10	69.7	1.189	0.216	1.1842	
30 minute summer	S10	1.008	S20	76.8	1.297	0.409	2.0088	
30 minute summer	S11	3.000	S12	10.2	1.250	0.106	0.1450	
30 minute summer	S12	3.001	S15	18.2	1.857	0.186	0.2296	
30 minute summer	S13	4.000	S14	8.6	0.891	0.158	0.1100	
30 minute summer	S14	4.001	S15	8.6	0.863	0.188	0.1278	
30 minute summer	S15	3.002	S16	42.8	1.536	0.178	0.9213	
30 minute summer	S16	3.003	S17	48.2	1.647	0.192	0.6554	
30 minute summer	S17	3.004	S18	48.0	1.452	0.192	0.5867	
30 minute summer	S18	3.005	S19	59.1	1.456	0.267	0.9832	
30 minute summer	S19	3.006	S20	68.0	1.672	0.303	0.4681	
30 minute summer	S20	1.009	S21	145.3	1.898	0.272	1.7915	
30 minute winter	S21	1.009a	S22	138.3	2.737	0.766	1.7691	
30 minute summer	S22	1.010	S23	12.1	0.419	0.046	0.8563	
8640 minute winter	S23	1.011	S24	1.5	0.568	0.016	0.1759	
30 minute summer	S24	1.012	S25	18.6	1.205	0.114	0.6110	
30 minute summer	S25	1.013	S26	18.4	0.995	0.201	0.3526	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	19	42.961	0.091	18.4	0.1296	0.0000	OK
30 minute summer	S27	19	42.829	0.129	35.3	0.3884	0.0000	OK
30 minute summer	S28	18	45.798	0.098	14.5	0.2910	0.0000	OK
30 minute summer	S29	18	45.574	0.049	14.5	0.0550	0.0000	OK
30 minute summer	S30	18	44.766	0.066	11.2	0.1488	0.0000	OK
30 minute summer	S31	18	44.624	0.074	14.0	0.0989	0.0000	OK
30 minute summer	S32	18	44.376	0.071	14.0	0.0801	0.0000	OK
30 minute summer	S33	18	44.340	0.160	42.9	0.3037	0.0000	OK
30 minute summer	S34	18	44.254	0.119	58.0	0.2387	0.0000	OK
30 minute summer	S35	18	43.692	0.092	23.1	0.3460	0.0000	OK
30 minute summer	S36	18	43.067	0.102	23.2	0.1154	0.0000	OK
30 minute summer	S37	18	42.948	0.203	82.8	0.3215	0.0000	OK
30 minute summer	S38	18	42.838	0.158	91.3	0.3284	0.0000	OK
30 minute summer	S39	19	42.147	0.117	125.0	0.1669	0.0000	OK
30 minute summer	S40	19	41.256	0.156	125.2	0.0000	0.0000	OK
30 minute summer	S41	18	49.555	0.080	32.5	0.3749	0.0000	OK
30 minute summer	S42	18	47.053	0.128	44.5	0.2922	0.0000	OK
30 minute summer	S43	18	46.816	0.141	55.7	0.3110	0.0000	OK
30 minute summer	S44	18	46.446	0.121	70.8	0.3096	0.0000	OK
30 minute summer	S45	18	45.491	0.141	82.9	0.3635	0.0000	OK
30 minute summer	S46	19	45.212	0.132	88.3	0.2632	0.0000	OK
30 minute summer	S47	18	47.163	0.138	29.7	0.5672	0.0000	OK
30 minute summer	S48	18	46.874	0.099	48.9	0.3263	0.0000	OK
30 minute summer	S49	18	46.100	0.125	48.7	0.1787	0.0000	OK
30 minute summer	S50	18	45.862	0.087	48.4	0.1246	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	18.5	0.794	0.202	0.5857	
30 minute summer	S27	1.015	S39	34.0	1.197	0.373	2.1953	
30 minute summer	S28	5.000	S29	14.5	1.291	0.343	0.3026	
30 minute summer	S29	5.001	S33	14.5	1.824	0.103	0.1754	
30 minute summer	S30	6.000	S31	11.2	0.897	0.101	0.1877	
30 minute summer	S31	6.001	S32	14.0	1.073	0.127	0.3225	
30 minute summer	S32	6.002	S33	14.0	0.561	0.124	0.3108	
30 minute summer	S33	5.002	S34	42.8	1.332	0.531	0.2734	
30 minute summer	S34	5.003	S37	57.5	2.261	0.316	1.1861	
30 minute summer	S35	7.000	S36	23.2	1.177	0.208	1.2508	
30 minute summer	S36	7.001	S37	22.8	1.169	0.203	0.1334	
30 minute summer	S37	5.004	S38	82.5	1.396	0.405	0.9626	
30 minute summer	S38	5.005	S39	91.0	2.241	0.232	1.8098	
30 minute summer	S39	1.016	S40	125.2	3.087	0.147	0.5472	
30 minute summer	S40	1.016a	S62	125.5	2.562	0.268	1.1119	
30 minute summer	S41	8.000	S42	32.4	2.173	0.153	1.0265	
30 minute summer	S42	8.001	S43	44.4	1.254	0.233	0.9791	
30 minute summer	S43	8.002	S44	55.2	1.530	0.272	0.9673	
30 minute summer	S44	8.003	S45	70.4	1.830	0.162	2.0834	
30 minute summer	S45	8.004	S46	82.0	2.028	0.175	0.5232	
30 minute summer	S46	8.005	S52	88.5	2.428	0.163	0.7024	
30 minute summer	S47	9.000	S48	29.3	0.957	0.413	1.3056	
30 minute summer	S48	9.001	S49	48.7	1.768	0.156	0.9094	
30 minute summer	S49	9.002	S50	48.4	1.897	0.195	0.3370	
30 minute summer	S50	9.003	S51	48.3	2.196	0.119	0.5386	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	19	44.908	0.183	67.9	0.4755	0.0000	OK
30 minute summer	S52	19	44.632	0.242	155.8	0.3460	0.0000	OK
30 minute summer	S53	19	44.444	0.144	184.0	0.5738	0.0000	OK
30 minute summer	S54	18	45.017	0.067	9.6	0.1641	0.0000	OK
30 minute summer	S55	18	44.736	0.061	9.6	0.0687	0.0000	OK
30 minute summer	S56	18	44.625	0.085	36.2	0.2827	0.0000	OK
30 minute summer	S57	19	41.884	0.179	35.8	0.2556	0.0000	OK
30 minute summer	S58	19	41.809	0.214	233.3	0.9207	0.0000	OK
30 minute summer	S59	19	41.139	0.259	245.9	0.6193	0.0000	OK
30 minute summer	S60	19	40.955	0.330	252.3	0.6457	0.0000	OK
360 minute winter	S61	288	40.926	0.326	58.4	0.0000	0.0000	OK
360 minute winter	S62	288	40.926	0.526	88.5	493.6035	0.0000	OK
360 minute winter	S63	288	40.926	0.556	20.1	3.1851	0.0000	SURCHARGED
360 minute winter	S64	288	40.445	0.090	19.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	67.3	1.148	0.331	2.7252	
30 minute summer	S52	8.006	S53	156.2	2.000	0.331	1.5086	
30 minute summer	S53	8.007	S58	184.8	3.660	0.121	2.7267	
30 minute summer	S54	10.000	S55	9.6	0.991	0.183	0.1904	
30 minute summer	S55	10.001	S56	9.6	0.724	0.086	0.1782	
30 minute summer	S56	10.002	S57	35.8	2.197	0.174	1.2098	
30 minute summer	S57	10.003	S58	35.3	0.594	0.208	3.3249	
30 minute summer	S58	8.008	S59	233.9	2.101	0.212	5.7401	
30 minute summer	S59	8.009	S60	244.9	1.637	0.224	2.8101	
30 minute summer	S60	8.010	S61	251.1	1.605	0.666	2.3884	
30 minute summer	S61	8.011	S62	250.2	2.935	0.381	4.0680	
180 minute winter	S62	1.017	S63	20.2	0.292	0.046	3.9363	
360 minute winter	S63	1.018	S64	19.8	0.879	0.131	0.0590	1034.1

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	17	49.342	0.117	51.1	0.3349	0.0000	OK
30 minute summer	S2	18	48.954	0.154	36.1	0.3000	0.0000	OK
30 minute summer	S3	18	48.828	0.193	99.2	0.2636	0.0000	OK
30 minute summer	S4	18	48.284	0.209	124.2	0.4317	0.0000	OK
30 minute summer	S5	18	47.948	0.273	174.0	0.6861	0.0000	OK
30 minute summer	S6	18	47.610	0.275	184.0	0.4575	0.0000	OK
30 minute summer	S7	19	47.141	0.266	228.6	0.6835	0.0000	OK
30 minute summer	S8	19	46.684	0.834	230.2	1.4567	0.0000	SURCHARGED
30 minute summer	S9	20	46.542	1.092	245.6	2.1977	0.0000	SURCHARGED
30 minute summer	S10	20	46.372	1.122	265.6	2.3275	0.0000	SURCHARGED
30 minute summer	S11	18	48.424	0.099	38.6	0.2485	0.0000	OK
30 minute summer	S12	18	47.875	0.150	68.7	0.3410	0.0000	OK
30 minute summer	S13	18	47.268	0.143	32.6	0.3348	0.0000	OK
30 minute summer	S14	18	47.153	0.153	32.6	0.2189	0.0000	OK
30 minute summer	S15	20	47.076	0.326	161.4	0.9636	0.0000	OK
30 minute summer	S16	20	46.919	0.644	186.3	1.2567	0.0000	SURCHARGED
30 minute summer	S17	20	46.741	0.816	171.7	1.1682	0.0000	SURCHARGED
30 minute summer	S18	20	46.589	0.939	190.3	2.3819	0.0000	SURCHARGED
30 minute summer	S19	20	46.306	0.951	218.5	1.7693	0.0000	SURCHARGED
30 minute summer	S20	20	46.078	0.943	477.1	1.3495	0.0000	SURCHARGED
30 minute summer	S21	20	45.448	0.948	477.3	0.0000	0.0000	SURCHARGED
10080 minute winter	S22	7740	45.356	0.956	9.2	974.7734	0.0000	SURCHARGED
10080 minute winter	S23	7740	45.356	1.056	7.7	3.6591	0.0000	SURCHARGED
30 minute summer	S24	18	43.987	0.137	71.0	0.4492	0.0000	OK
30 minute summer	S25	20	43.430	0.430	71.0	0.6160	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	51.1	2.498	0.451	0.2291	
30 minute summer	S2	2.000	S3	36.1	1.335	0.687	0.2378	
30 minute summer	S3	1.001	S4	99.2	2.191	0.657	1.1938	
30 minute summer	S4	1.002	S5	124.4	1.664	0.531	2.1724	
30 minute summer	S5	1.003	S6	174.0	2.019	0.750	2.1825	
30 minute summer	S6	1.004	S7	183.5	2.328	0.784	2.8181	
30 minute summer	S7	1.005	S8	218.4	3.340	0.573	2.5548	
30 minute summer	S8	1.006	S9	223.7	1.829	0.478	3.0313	
30 minute summer	S9	1.007	S10	241.4	1.524	0.750	3.1966	
30 minute summer	S10	1.008	S20	262.9	1.659	1.402	5.3649	
30 minute summer	S11	3.000	S12	38.6	1.718	0.401	0.3961	
30 minute summer	S12	3.001	S15	68.7	2.562	0.701	0.6420	
30 minute summer	S13	4.000	S14	32.6	1.182	0.598	0.3142	
30 minute summer	S14	4.001	S15	32.6	1.197	0.711	0.3769	
30 minute summer	S15	3.002	S16	165.8	1.991	0.691	3.5070	
30 minute summer	S16	3.003	S17	171.7	1.989	0.686	2.4712	
30 minute summer	S17	3.004	S18	153.8	1.653	0.615	1.9478	
30 minute summer	S18	3.005	S19	186.4	1.740	0.842	2.6640	
30 minute summer	S19	3.006	S20	215.4	2.072	0.958	1.2676	
30 minute summer	S20	1.009	S21	477.3	3.013	0.893	3.6971	
30 minute summer	S21	1.009a	S22	479.1	3.598	2.653	4.4144	
30 minute summer	S22	1.010	S23	29.7	0.510	0.112	2.2857	
10080 minute winter	S23	1.011	S24	1.6	0.582	0.017	0.1846	
30 minute summer	S24	1.012	S25	71.0	1.642	0.433	1.9735	
30 minute summer	S25	1.013	S26	65.3	1.265	0.713	1.3430	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	20	43.354	0.484	65.3	0.6922	0.0000	SURCHARGED
30 minute summer	S27	20	43.253	0.553	120.8	1.6684	0.0000	SURCHARGED
30 minute summer	S28	18	46.046	0.346	54.6	1.0249	0.0000	SURCHARGED
30 minute summer	S29	19	45.632	0.107	52.6	0.1207	0.0000	OK
30 minute summer	S30	20	45.127	0.427	42.1	0.9612	0.0000	SURCHARGED
30 minute summer	S31	19	45.106	0.556	51.3	0.7424	0.0000	SURCHARGED
30 minute summer	S32	19	45.059	0.754	50.1	0.8528	0.0000	SURCHARGED
30 minute summer	S33	19	45.032	0.852	140.6	1.6160	0.0000	SURCHARGED
30 minute summer	S34	19	44.802	0.667	188.7	1.3367	0.0000	SURCHARGED
30 minute summer	S35	18	43.797	0.197	87.2	0.7393	0.0000	OK
30 minute summer	S36	18	43.325	0.360	87.2	0.4072	0.0000	SURCHARGED
30 minute summer	S37	19	43.250	0.505	277.6	0.7989	0.0000	SURCHARGED
30 minute summer	S38	19	43.012	0.332	307.8	0.6928	0.0000	OK
30 minute summer	S39	19	42.273	0.243	421.8	0.3473	0.0000	OK
240 minute winter	S40	228	41.640	0.540	114.5	0.0000	0.0000	SURCHARGED
30 minute summer	S41	18	49.637	0.162	122.2	0.7591	0.0000	OK
30 minute summer	S42	19	47.264	0.339	167.8	0.7763	0.0000	OK
30 minute summer	S43	19	47.068	0.393	207.2	0.8681	0.0000	SURCHARGED
30 minute summer	S44	18	46.581	0.256	263.4	0.6519	0.0000	OK
30 minute summer	S45	18	45.684	0.334	307.1	0.8588	0.0000	OK
30 minute summer	S46	18	45.382	0.302	331.7	0.6032	0.0000	OK
30 minute summer	S47	18	47.550	0.525	111.7	2.1548	0.0000	SURCHARGED
30 minute summer	S48	18	46.989	0.214	182.2	0.7073	0.0000	OK
30 minute summer	S49	18	46.254	0.279	181.7	0.3997	0.0000	OK
30 minute summer	S50	18	45.954	0.179	180.8	0.2556	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	62.8	0.970	0.687	1.7642	
30 minute summer	S27	1.015	S39	114.6	1.635	1.261	5.2298	
30 minute summer	S28	5.000	S29	52.6	1.631	1.246	0.7690	
30 minute summer	S29	5.001	S33	52.0	1.850	0.369	0.5106	
30 minute summer	S30	6.000	S31	40.8	1.247	0.367	1.0586	
30 minute summer	S31	6.001	S32	50.1	1.256	0.452	1.7358	
30 minute summer	S32	6.002	S33	59.8	0.850	0.532	0.8597	
30 minute summer	S33	5.002	S34	140.8	2.000	1.747	0.5988	
30 minute summer	S34	5.003	S37	186.5	2.848	1.026	3.2840	
30 minute summer	S35	7.000	S36	87.2	1.465	0.784	3.7869	
30 minute summer	S36	7.001	S37	85.5	1.276	0.760	0.4809	
30 minute summer	S37	5.004	S38	277.7	1.875	1.363	2.2998	
30 minute summer	S38	5.005	S39	308.6	2.886	0.788	4.7169	
30 minute summer	S39	1.016	S40	421.4	3.999	0.493	1.4091	
30 minute summer	S40	1.016a	S62	420.9	3.440	0.898	2.9372	
30 minute summer	S41	8.000	S42	122.2	2.619	0.578	3.5293	
30 minute summer	S42	8.001	S43	164.6	1.589	0.866	2.9751	
30 minute summer	S43	8.002	S44	204.8	2.030	1.010	2.8436	
30 minute summer	S44	8.003	S45	260.0	2.385	0.598	5.9280	
30 minute summer	S45	8.004	S46	307.7	2.581	0.657	1.5439	
30 minute summer	S46	8.005	S52	331.5	2.652	0.611	2.4524	
30 minute summer	S47	9.000	S48	108.6	1.553	1.532	2.8563	
30 minute summer	S48	9.001	S49	181.7	2.362	0.581	2.5213	
30 minute summer	S49	9.002	S50	180.8	2.571	0.730	0.9157	
30 minute summer	S50	9.003	S51	179.6	2.177	0.442	1.9291	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	18	45.245	0.520	253.2	1.3532	0.0000	SURCHARGED
30 minute summer	S52	18	44.916	0.526	580.8	0.7527	0.0000	OK
30 minute summer	S53	18	44.577	0.277	693.6	1.1037	0.0000	OK
30 minute summer	S54	18	45.097	0.147	36.1	0.3594	0.0000	OK
30 minute summer	S55	18	44.805	0.130	36.1	0.1470	0.0000	OK
30 minute summer	S56	18	44.723	0.183	136.3	0.6059	0.0000	OK
30 minute summer	S57	19	42.239	0.534	135.9	0.7648	0.0000	OK
30 minute summer	S58	20	42.219	0.624	863.4	2.6868	0.0000	OK
30 minute summer	S59	19	41.744	0.864	867.2	2.0639	0.0000	SURCHARGED
240 minute winter	S60	228	41.640	1.015	258.9	1.9857	0.0000	SURCHARGED
240 minute winter	S61	232	41.640	1.040	221.9	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.640	1.240	335.5	1481.3670	0.0000	SURCHARGED
240 minute winter	S63	232	41.639	1.269	53.9	7.2653	0.0000	SURCHARGED
240 minute winter	S64	232	40.507	0.152	53.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	251.0	1.602	1.235	6.9680	
30 minute summer	S52	8.006	S53	578.7	2.909	1.227	3.7107	
30 minute summer	S53	8.007	S58	691.6	3.966	0.454	10.6574	
30 minute summer	S54	10.000	S55	36.1	1.373	0.689	0.5169	
30 minute summer	S55	10.001	S56	36.1	0.987	0.323	0.4962	
30 minute summer	S56	10.002	S57	135.9	3.091	0.659	3.7218	
30 minute summer	S57	10.003	S58	135.0	0.712	0.794	14.8620	
30 minute summer	S58	8.008	S59	826.2	2.366	0.747	18.0540	
30 minute summer	S59	8.009	S60	866.4	2.427	0.792	6.6969	
30 minute summer	S60	8.010	S61	895.3	2.511	2.375	5.3910	
30 minute summer	S61	8.011	S62	904.5	3.233	1.376	14.2205	
240 minute winter	S62	1.017	S63	53.9	0.359	0.123	4.8877	
240 minute winter	S63	1.018	S64	53.8	1.154	0.357	0.1224	2714.9

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	17	49.364	0.139	67.3	0.3967	0.0000	OK
30 minute summer	S2	20	49.127	0.327	47.5	0.6344	0.0000	SURCHARGED
30 minute summer	S3	20	49.048	0.413	130.6	0.5654	0.0000	SURCHARGED
30 minute summer	S4	20	48.733	0.658	163.3	1.3600	0.0000	SURCHARGED
30 minute summer	S5	19	48.567	0.892	223.5	2.2438	0.0000	SURCHARGED
30 minute summer	S6	19	48.268	0.933	227.7	1.5529	0.0000	SURCHARGED
30 minute summer	S7	19	47.853	0.978	278.6	2.5165	0.0000	SURCHARGED
30 minute summer	S8	19	47.303	1.453	264.2	2.5387	0.0000	FLOOD RISK
30 minute summer	S9	19	47.100	1.650	293.3	3.3215	2.8958	FLOOD
30 minute summer	S10	19	46.900	1.650	301.5	3.4211	0.0000	FLOOD RISK
30 minute summer	S11	20	48.631	0.306	50.8	0.7694	0.0000	SURCHARGED
30 minute summer	S12	20	48.505	0.780	89.9	1.7725	0.0000	SURCHARGED
30 minute summer	S13	20	48.138	1.013	42.9	2.3749	0.0000	SURCHARGED
30 minute summer	S14	20	48.072	1.072	40.4	1.5346	0.0000	SURCHARGED
30 minute summer	S15	20	47.994	1.244	184.1	3.6751	0.0000	SURCHARGED
30 minute summer	S16	20	47.713	1.438	202.1	2.8076	0.0000	FLOOD RISK
30 minute summer	S17	20	47.449	1.524	191.7	2.1813	0.0000	FLOOD RISK
30 minute summer	S18	19	47.225	1.575	228.8	3.9942	1.6121	FLOOD
30 minute summer	S19	19	46.856	1.501	253.7	2.7933	0.0000	SURCHARGED
30 minute summer	S20	19	46.531	1.396	547.1	1.9976	0.0000	SURCHARGED
30 minute summer	S21	19	45.700	1.199	547.5	0.0000	0.0000	FLOOD RISK
10080 minute winter	S22	7860	45.552	1.152	9.6	1248.0660	0.0000	SURCHARGED
10080 minute winter	S23	7860	45.552	1.252	6.8	4.3374	0.0000	SURCHARGED
30 minute summer	S24	20	44.131	0.281	93.1	0.9241	0.0000	OK
30 minute summer	S25	19	43.966	0.966	88.7	1.3823	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	67.3	2.506	0.594	0.3570	
30 minute summer	S2	2.000	S3	47.5	1.400	0.904	0.3500	
30 minute summer	S3	1.001	S4	130.3	2.270	0.863	1.8570	
30 minute summer	S4	1.002	S5	158.2	1.672	0.675	3.2173	
30 minute summer	S5	1.003	S6	214.5	2.037	0.924	2.7924	
30 minute summer	S6	1.004	S7	219.2	2.283	0.937	3.7173	
30 minute summer	S7	1.005	S8	248.6	3.271	0.652	2.9089	
30 minute summer	S8	1.006	S9	264.6	1.825	0.565	3.0313	
30 minute summer	S9	1.007	S10	268.5	1.695	0.834	3.1966	
30 minute winter	S10	1.008	S20	295.2	1.863	1.574	5.3649	
30 minute summer	S11	3.000	S12	50.3	1.766	0.523	0.7016	
30 minute summer	S12	3.001	S15	83.0	2.592	0.848	0.9321	
30 minute summer	S13	4.000	S14	40.4	1.223	0.740	0.4518	
30 minute summer	S14	4.001	S15	43.4	1.205	0.948	0.5109	
30 minute summer	S15	3.002	S16	177.5	2.007	0.739	3.6481	
30 minute summer	S16	3.003	S17	191.7	1.989	0.766	2.4712	
30 minute summer	S17	3.004	S18	184.6	1.674	0.739	1.9478	
30 minute summer	S18	3.005	S19	217.4	1.971	0.982	2.6640	
30 minute summer	S19	3.006	S20	254.4	2.307	1.131	1.2676	
30 minute summer	S20	1.009	S21	547.5	3.456	1.024	3.6971	
30 minute summer	S21	1.009a	S22	547.8	3.937	3.033	5.0238	
30 minute winter	S22	1.010	S23	30.8	0.567	0.116	2.3553	
10080 minute winter	S23	1.011	S24	1.8	0.598	0.019	0.1963	
30 minute summer	S24	1.012	S25	88.7	1.710	0.542	2.7370	
30 minute summer	S25	1.013	S26	78.1	1.271	0.852	1.3430	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	19	43.875	1.005	78.1	1.4384	0.0000	SURCHARGED
30 minute summer	S27	19	43.766	1.066	147.7	3.2181	0.0000	SURCHARGED
30 minute summer	S28	20	46.632	0.932	71.9	2.7611	0.0000	SURCHARGED
30 minute summer	S29	20	46.269	0.744	63.7	0.8409	0.0000	SURCHARGED
30 minute summer	S30	20	46.161	1.461	55.4	3.2897	0.0000	FLOOD RISK
30 minute summer	S31	20	46.128	1.578	63.5	2.1087	0.0000	SURCHARGED
30 minute summer	S32	20	46.048	1.743	55.7	1.9718	0.0000	SURCHARGED
30 minute summer	S33	20	45.997	1.817	165.6	3.4472	0.0000	SURCHARGED
30 minute summer	S34	20	45.650	1.515	228.6	3.0337	0.0000	SURCHARGED
30 minute summer	S35	19	44.190	0.590	114.8	2.2128	0.0000	SURCHARGED
30 minute summer	S36	19	43.524	0.559	106.8	0.6325	0.0000	SURCHARGED
30 minute summer	S37	19	43.400	0.655	342.1	1.0372	0.0000	SURCHARGED
30 minute summer	S38	19	43.091	0.411	381.4	0.8565	0.0000	OK
30 minute summer	S39	20	42.323	0.293	520.2	0.4196	0.0000	OK
240 minute winter	S40	232	41.901	0.801	145.7	0.0000	0.0000	SURCHARGED
30 minute summer	S41	18	49.676	0.201	160.9	0.9419	0.0000	OK
30 minute summer	S42	18	47.787	0.862	219.6	1.9710	0.0000	SURCHARGED
30 minute summer	S43	18	47.373	0.698	267.4	1.5430	0.0000	SURCHARGED
30 minute summer	S44	19	46.660	0.335	342.6	0.8543	0.0000	OK
30 minute summer	S45	19	46.001	0.651	402.7	1.6742	0.0000	SURCHARGED
30 minute summer	S46	19	45.654	0.574	419.7	1.1461	0.0000	SURCHARGED
30 minute summer	S47	18	47.935	0.910	147.1	3.7354	0.0000	SURCHARGED
30 minute summer	S48	18	47.042	0.266	239.2	0.8789	0.0000	OK
30 minute summer	S49	19	46.397	0.422	237.6	0.6043	0.0000	SURCHARGED
30 minute summer	S50	19	46.089	0.314	233.5	0.4489	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	82.3	1.169	0.901	1.7642	
30 minute summer	S27	1.015	S39	139.7	1.983	1.536	5.3544	
30 minute summer	S28	5.000	S29	63.7	1.762	1.508	1.0490	
30 minute summer	S29	5.001	S33	61.2	1.828	0.434	0.6966	
30 minute summer	S30	6.000	S31	50.9	1.256	0.458	1.0586	
60 minute summer	S31	6.001	S32	58.7	1.241	0.530	1.7358	
30 minute summer	S32	6.002	S33	68.7	0.976	0.611	0.8597	
30 minute summer	S33	5.002	S34	168.8	2.397	2.094	0.5988	
30 minute summer	S34	5.003	S37	226.0	3.210	1.244	3.2840	
30 minute summer	S35	7.000	S36	106.8	1.517	0.961	4.4635	
30 minute summer	S36	7.001	S37	106.7	1.516	0.949	0.4809	
30 minute summer	S37	5.004	S38	341.8	2.158	1.678	2.5127	
30 minute summer	S38	5.005	S39	380.5	2.916	0.971	5.7182	
30 minute summer	S39	1.016	S40	519.0	4.015	0.608	1.7982	
30 minute summer	S40	1.016a	S62	519.2	3.446	1.108	3.5976	
30 minute summer	S41	8.000	S42	159.6	2.622	0.755	4.1561	
30 minute summer	S42	8.001	S43	213.6	1.937	1.123	3.0489	
30 minute summer	S43	8.002	S44	266.5	2.416	1.314	2.9158	
30 minute summer	S44	8.003	S45	340.7	2.386	0.784	7.7103	
30 minute summer	S45	8.004	S46	390.9	2.596	0.834	2.0449	
30 minute summer	S46	8.005	S52	418.8	2.654	0.772	3.0529	
30 minute summer	S47	9.000	S48	142.4	2.022	2.009	2.9531	
30 minute summer	S48	9.001	S49	237.6	2.428	0.760	3.1944	
30 minute summer	S49	9.002	S50	233.5	2.566	0.943	1.3679	
30 minute summer	S50	9.003	S51	233.9	2.180	0.576	2.4859	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	19	45.719	0.994	324.4	2.5852	0.0000	SURCHARGED
30 minute summer	S52	19	45.146	0.756	741.1	1.0811	0.0000	SURCHARGED
30 minute summer	S53	19	44.696	0.396	878.2	1.5776	0.0000	OK
30 minute summer	S54	18	45.134	0.184	47.5	0.4486	0.0000	OK
30 minute summer	S55	18	44.830	0.155	47.5	0.1753	0.0000	OK
30 minute summer	S56	19	44.796	0.256	179.4	0.8478	0.0000	OK
30 minute summer	S57	20	43.366	1.661	180.9	2.3764	0.0000	SURCHARGED
30 minute summer	S58	20	43.332	1.737	1089.9	7.4859	0.0000	SURCHARGED
30 minute summer	S59	20	42.461	1.581	1115.7	3.7753	0.0000	SURCHARGED
30 minute summer	S60	20	41.956	1.331	1146.2	2.6042	0.0000	SURCHARGED
240 minute winter	S61	232	41.901	1.301	288.0	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.900	1.500	430.3	1933.9860	0.0000	FLOOD RISK
240 minute winter	S63	232	41.899	1.529	62.2	8.7567	0.0000	SURCHARGED
240 minute winter	S64	232	40.520	0.165	62.2	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	322.3	2.034	1.586	7.3618	
30 minute summer	S52	8.006	S53	740.3	2.819	1.570	4.5691	
30 minute summer	S53	8.007	S58	868.8	3.970	0.570	12.9231	
30 minute summer	S54	10.000	S55	47.5	1.436	0.906	0.6493	
30 minute summer	S55	10.001	S56	47.6	1.004	0.426	0.6633	
30 minute summer	S56	10.002	S57	180.9	3.109	0.878	4.9896	
30 minute summer	S57	10.003	S58	161.9	0.795	0.952	15.6855	
30 minute summer	S58	8.008	S59	1067.4	2.990	0.965	18.3737	
30 minute summer	S59	8.009	S60	1115.2	3.124	1.019	6.6969	
30 minute summer	S60	8.010	S61	1143.3	3.203	3.033	5.4468	
30 minute summer	S61	8.011	S62	1142.7	3.265	1.739	14.4772	
240 minute winter	S62	1.017	S63	62.2	0.331	0.142	4.8877	
240 minute winter	S63	1.018	S64	62.2	1.199	0.412	0.1360	3361.4

Appendix H2

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.102	5.00	50.650	1350	510217.869	117309.804	1.425
S2	0.072	5.00	50.575	1200	510199.990	117317.737	1.775
S3	0.024	5.00	50.650	1200	510207.354	117312.920	2.015
S4	0.050	5.00	49.650	1350	510198.830	117287.966	1.575
S5	0.099	5.00	49.500	1350	510192.742	117259.439	1.825
S6	0.020	5.00	49.050	1350	510168.011	117264.856	1.715
S7	0.090	5.00	48.450	1350	510136.486	117276.775	1.575
S8	0.026	5.00	47.500	1350	510125.725	117252.697	1.650
S9	0.048	5.00	47.100	1350	510126.450	117233.579	1.650
S10	0.053	5.00	46.900	1350	510137.466	117216.677	1.650
S11	0.077	5.00	49.750	1350	510222.928	117247.914	1.425
S12	0.060	5.00	49.150	1350	510238.181	117239.052	1.425
S13	0.065	5.00	48.550	1350	510275.499	117224.126	1.425
S14			48.425	1350	510264.141	117224.263	1.425
S15	0.120	5.00	48.325	1350	510251.984	117220.111	1.575
S16	0.041	5.00	47.850	1350	510229.514	117195.840	1.575
S17			47.500	1350	510210.055	117184.735	1.575
S18	0.087	5.00	47.225	1350	510193.715	117178.036	1.575
S19	0.071	5.00	47.300	1200	510178.040	117196.411	1.945
S20			47.150	1350	510167.758	117201.547	2.015
S21			45.900		510157.332	117180.672	1.400
S22			45.900		510126.179	117174.651	1.500
S23			45.900	2100	510113.478	117166.928	1.600
S24	0.139	5.00	45.350	1350	510089.528	117108.538	1.500
S25			44.500	1350	510079.463	117070.476	1.500
S26			44.500	1350	510075.631	117051.794	1.630
S27	0.131	5.00	44.350	1350	510100.203	117046.907	1.650
S28	0.109	5.00	47.125	1350	510203.209	117149.545	1.425
S29			47.300	1200	510218.193	117127.837	1.775
S30	0.084	5.00	46.200	1200	510160.812	117142.303	1.500
S31	0.021	5.00	46.600	1200	510174.809	117136.819	2.050
S32			47.125	1200	510196.228	117124.621	2.820
S33	0.108	5.00	47.000	1200	510205.085	117116.220	2.820
S34	0.114	5.00	46.750	1200	510199.300	117109.988	2.615

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S35	0.174	5.00	45.100	1350	510119.407	117096.317	1.500
S36			45.250	1200	510177.986	117072.109	2.285
S37	0.019	5.00	45.250	1350	510182.085	117066.647	2.505
S38	0.066	5.00	44.700	1350	510185.475	117050.806	2.020
S39			43.800	1350	510168.164	117009.963	1.770
S40			43.000		510162.966	116997.581	1.900
S41	0.244	5.00	50.975	1350	510327.972	117263.441	1.500
S42	0.091	5.00	48.500	1200	510299.910	117200.493	1.575
S43	0.085	5.00	48.250	1200	510287.138	117175.978	1.575
S44	0.117	5.00	47.975	1200	510268.634	117156.631	1.650
S45	0.094	5.00	47.000	1350	510238.052	117112.009	1.650
S46	0.048	5.00	46.775	1350	510248.394	117104.288	1.695
S47	0.223	5.00	48.525	1200	510364.633	117185.808	1.500
S48	0.147	5.00	48.350	1350	510346.623	117147.180	1.575
S49			47.550	1350	510321.771	117125.589	1.575
S50			47.350	1350	510315.443	117114.115	1.575
S51	0.147	5.00	46.725	1200	510312.259	117090.517	2.000
S52			46.500	1350	510266.261	117097.074	2.110
S53	0.230	5.00	46.100	1350	510262.007	117078.469	1.800
S54	0.072	5.00	46.375	1350	510343.342	117086.034	1.425
S55			46.700	1200	510323.878	117088.841	2.025
S56	0.200	5.00	46.375	1200	510321.970	117075.611	1.835
S57			43.750	1350	510292.373	117007.555	2.045
S58	0.108	5.00	44.150	2100	510240.894	117028.789	2.555
S59	0.099	5.00	42.950	1350	510220.675	116981.457	2.070
S60	0.061	5.00	42.950	1350	510203.368	116988.697	2.325
S61			42.700		510188.721	116984.423	2.100
S62			42.200		510148.389	116980.172	1.800
S63			42.200	2700	510134.728	116981.088	1.830
S64			42.000	1200	510132.248	116980.238	1.645

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S3	10.967	0.600	49.225	48.710	0.515	21.3	225	5.06	37.9
2.000	S2	S3	8.800	0.600	48.800	48.710	0.090	97.8	225	5.11	37.7
1.001	S3	S4	26.370	0.600	48.635	48.150	0.485	54.4	300	5.32	37.1
1.002	S4	S5	29.169	0.600	48.075	47.675	0.400	73.0	375	5.55	36.4
1.003	S5	S6	25.317	0.600	47.675	47.335	0.340	74.5	375	5.75	35.8
1.004	S6	S7	33.703	0.600	47.335	46.875	0.460	73.3	375	6.01	35.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.848	113.2	14.0	1.200	1.715	0.102	0.0	53	1.953
2.000	1.322	52.6	9.8	1.550	1.715	0.072	0.0	65	1.016
1.001	2.136	151.0	26.6	1.715	1.200	0.198	0.0	85	1.621
1.002	2.122	234.4	32.6	1.200	1.450	0.248	0.0	94	1.513
1.003	2.101	232.1	44.9	1.450	1.340	0.347	0.0	111	1.638
1.004	2.119	234.0	46.4	1.340	1.200	0.367	0.0	112	1.663

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.005	S7	S8	26.373	0.600	46.875	45.925	0.950	27.8	375	6.14	34.6
1.006	S8	S9	19.132	0.600	45.850	45.450	0.400	47.8	450	6.25	34.4
1.007	S9	S10	20.175	0.600	45.450	45.250	0.200	100.9	450	6.41	33.9
1.008	S10	S20	33.860	0.600	45.250	45.135	0.115	294.4	450	6.89	32.7
3.000	S11	S12	17.641	0.600	48.325	47.725	0.600	29.4	225	5.12	37.7
3.001	S12	S15	23.437	0.600	47.725	46.900	0.825	28.4	225	5.28	37.2
4.000	S13	S14	11.359	0.600	47.125	47.000	0.125	90.9	225	5.14	37.7
4.001	S14	S15	12.846	0.600	47.000	46.900	0.100	128.5	225	5.32	37.1
3.002	S15	S16	33.075	0.600	46.750	46.275	0.475	69.6	375	5.58	36.3
3.003	S16	S17	22.405	0.600	46.275	45.925	0.350	64.0	375	5.74	35.8
3.004	S17	S18	17.660	0.600	45.925	45.650	0.275	64.2	375	5.87	35.4
3.005	S18	S19	24.153	0.600	45.650	45.355	0.295	81.9	375	6.07	34.8
3.006	S19	S20	11.493	0.600	45.355	45.210	0.145	79.3	375	6.17	34.6
1.009	S20	S21	23.334	0.600	45.135	44.500	0.635	36.7	450	7.01	32.4
1.009a	S21	S22	31.730	0.600	44.500	44.400	0.100	317.3	450	7.47	31.4
1.010	S22	S23	14.865	0.600	44.400	44.300	0.100	148.6	450	7.62	31.1
1.011	S23	S24	63.111	0.600	44.300	43.850	0.450	140.2	300	8.42	29.6
1.012	S24	S25	39.370	0.600	43.850	43.000	0.850	46.3	300	8.70	29.1
1.013	S25	S26	19.071	0.600	43.000	42.870	0.130	146.7	300	8.94	28.6
1.014	S26	S27	25.053	0.600	42.870	42.700	0.170	147.4	300	9.27	28.1
1.015	S27	S39	77.353	0.600	42.700	42.180	0.520	148.8	300	10.27	26.6
5.000	S28	S29	26.377	0.600	45.700	45.525	0.175	150.7	225	5.41	36.8
5.001	S29	S33	17.515	0.600	45.525	44.255	1.270	13.8	225	5.50	36.6
6.000	S30	S31	15.033	0.600	44.700	44.550	0.150	100.0	300	5.16	37.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.005	3.450	381.0	57.2	1.200	1.200	0.457	0.0	98	2.514
1.006	2.945	468.4	60.0	1.200	1.200	0.483	0.0	108	2.050
1.007	2.024	321.9	65.1	1.200	1.200	0.531	0.0	137	1.601
1.008	1.179	187.6	69.1	1.200	1.565	0.584	0.0	189	1.093
3.000	2.422	96.3	10.5	1.200	1.200	0.077	0.0	50	1.597
3.001	2.464	98.0	18.4	1.200	1.200	0.137	0.0	65	1.896
4.000	1.372	54.5	8.8	1.200	1.200	0.065	0.0	61	1.015
4.001	1.152	45.8	8.7	1.200	1.200	0.065	0.0	66	0.891
3.002	2.173	240.1	42.2	1.200	1.200	0.322	0.0	106	1.652
3.003	2.267	250.4	47.0	1.200	1.200	0.363	0.0	109	1.755
3.004	2.264	250.0	46.4	1.200	1.200	0.363	0.0	109	1.746
3.005	2.003	221.3	56.6	1.200	1.570	0.450	0.0	129	1.685
3.006	2.036	224.9	65.1	1.570	1.565	0.521	0.0	137	1.770
1.009	3.362	534.7	129.5	1.565	0.950	1.105	0.0	150	2.790
1.009a	1.136	180.6	125.6	0.950	1.050	1.105	0.0	277	1.224
1.010	1.665	264.8	124.3	1.050	1.150	1.105	0.0	217	1.639
1.011	1.325	93.7	118.1	1.300	1.200	1.105	0.0	300	1.342
1.012	2.316	163.7	130.7	1.200	1.200	1.244	0.0	204	2.562
1.013	1.296	91.6	128.7	1.200	1.330	1.244	0.0	300	1.312
1.014	1.293	91.4	126.3	1.330	1.350	1.244	0.0	300	1.309
1.015	1.287	90.9	132.2	1.350	1.320	1.375	0.0	300	1.303
5.000	1.062	42.2	14.5	1.200	1.550	0.109	0.0	91	0.966
5.001	3.542	140.8	14.4	1.550	2.520	0.109	0.0	48	2.289
6.000	1.572	111.1	11.4	1.200	1.750	0.084	0.0	65	1.026

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.001	S31	S32	24.649	0.600	44.550	44.305	0.245	100.6	300	5.42	36.8
6.002	S32	S33	12.208	0.600	44.305	44.180	0.125	97.7	300	5.55	36.4
5.002	S33	S34	8.503	0.600	44.180	44.135	0.045	189.0	300	5.67	36.0
5.003	S34	S37	46.635	0.600	44.135	42.895	1.240	37.6	300	5.98	35.1
7.000	S35	S36	63.384	0.600	43.600	42.965	0.635	99.8	300	5.67	36.0
7.001	S36	S37	6.829	0.600	42.965	42.895	0.070	97.6	300	5.74	35.8
5.004	S37	S38	16.200	0.600	42.745	42.680	0.065	250.0	450	6.19	34.5
5.005	S38	S39	44.360	0.600	42.680	42.030	0.650	68.2	450	6.49	33.8
1.016	S39	S40	13.429	0.600	42.030	41.100	0.930	14.4	450	10.31	26.5
1.016a	S40	S62	22.706	0.600	41.100	40.625	0.475	47.8	450	10.44	26.4
8.000	S41	S42	68.920	0.600	49.475	47.000	2.475	27.8	300	5.38	36.9
8.001	S42	S43	27.643	0.600	46.925	46.675	0.250	110.6	375	5.65	36.1
8.002	S43	S44	26.771	0.600	46.675	46.400	0.275	97.4	375	5.89	35.3
8.003	S44	S45	54.096	0.600	46.325	45.350	0.975	55.5	450	6.22	34.4
8.004	S45	S46	12.906	0.600	45.350	45.080	0.270	47.8	450	6.30	34.2
8.005	S46	S52	19.268	0.600	45.080	44.540	0.540	35.7	450	6.39	34.0
9.000	S47	S48	42.620	0.600	47.025	46.850	0.175	243.5	300	5.71	35.9
9.001	S48	S49	32.921	0.600	46.775	45.975	0.800	41.2	375	5.90	35.3
9.002	S49	S50	13.103	0.600	45.975	45.775	0.200	65.5	375	6.00	35.0
9.003	S50	S51	23.812	0.600	45.775	44.800	0.975	24.4	375	6.11	34.7
9.004	S51	S52	46.463	0.600	44.725	44.540	0.185	251.2	450	6.71	33.2
8.006	S52	S53	19.085	0.600	44.390	44.300	0.090	212.1	600	6.90	32.7
8.007	S53	S58	53.980	0.600	44.300	41.670	2.630	20.5	600	7.07	32.3
10.000	S54	S55	19.665	0.600	44.950	44.750	0.200	98.3	225	5.25	37.3

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
6.001	1.567	110.8	14.0	1.750	2.520	0.105	0.0	71	1.079
6.002	1.591	112.4	13.8	2.520	2.520	0.105	0.0	71	1.091
5.002	1.140	80.6	41.9	2.520	2.315	0.322	0.0	154	1.152
5.003	2.571	181.8	55.3	2.315	2.055	0.436	0.0	113	2.268
7.000	1.573	111.2	22.6	1.200	1.985	0.174	0.0	91	1.241
7.001	1.592	112.5	22.5	1.985	2.055	0.174	0.0	91	1.251
5.004	1.281	203.7	78.5	2.055	1.570	0.629	0.0	194	1.202
5.005	2.463	391.8	84.8	1.570	1.320	0.695	0.0	141	1.981
1.016	5.371	854.2	198.5	1.320	1.450	2.070	0.0	146	4.405
1.016a	2.946	468.5	197.2	1.450	1.125	2.070	0.0	203	2.825
8.000	2.990	211.4	32.5	1.200	1.200	0.244	0.0	79	2.183
8.001	1.722	190.2	43.7	1.200	1.200	0.335	0.0	122	1.409
8.002	1.836	202.8	53.6	1.200	1.200	0.420	0.0	131	1.557
8.003	2.733	434.7	66.8	1.200	1.200	0.537	0.0	118	2.002
8.004	2.946	468.5	78.1	1.200	1.245	0.631	0.0	123	2.209
8.005	3.412	542.6	83.4	1.245	1.510	0.679	0.0	118	2.500
9.000	1.003	70.9	28.9	1.200	1.200	0.223	0.0	133	0.953
9.001	2.831	312.7	47.2	1.200	1.200	0.370	0.0	98	2.062
9.002	2.241	247.5	46.8	1.200	1.200	0.370	0.0	109	1.734
9.003	3.679	406.3	46.4	1.200	1.550	0.370	0.0	85	2.474
9.004	1.278	203.3	62.0	1.550	1.510	0.517	0.0	170	1.128
8.006	1.668	471.6	141.3	1.510	1.200	1.196	0.0	224	1.466
8.007	5.390	1524.1	166.5	1.200	1.880	1.426	0.0	132	3.596
10.000	1.318	52.4	9.7	1.200	1.725	0.072	0.0	65	1.013

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
10.001	S55	S56	13.367	0.600	44.675	44.540	0.135	99.0	300	5.39	36.9
10.002	S56	S57	74.213	0.600	44.540	42.005	2.535	29.3	300	5.81	35.6
10.003	S57	S58	55.686	0.600	41.705	41.670	0.035	1591.0	600	7.36	31.7
8.008	S58	S59	51.470	0.600	41.595	40.880	0.715	72.0	675	7.63	31.1
8.009	S59	S60	18.760	0.600	40.880	40.625	0.255	73.6	675	7.74	30.9
8.010	S60	S61	15.258	0.600	40.625	40.600	0.025	610.3	675	7.98	30.4
8.011	S61	S62	40.555	0.600	40.600	40.400	0.200	202.8	675	8.35	29.7
1.017	S62	S63	13.692	0.600	40.400	40.370	0.030	456.4	675	10.63	26.1
1.018	S63	S64	2.622	0.600	40.370	40.355	0.015	174.8	375	10.66	26.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
10.001	1.580	111.7	9.6	1.725	1.535	0.072	0.0	59	0.975
10.002	2.916	206.1	35.0	1.535	1.445	0.272	0.0	83	2.188
10.003	0.601	170.0	31.2	1.445	1.880	0.272	0.0	173	0.462
8.008	3.091	1106.0	203.0	1.880	1.395	1.806	0.0	194	2.383
8.009	3.057	1094.1	212.6	1.395	1.650	1.905	0.0	200	2.395
8.010	1.053	376.9	215.8	1.650	1.425	1.966	0.0	367	1.087
8.011	1.837	657.2	211.0	1.425	1.125	1.966	0.0	262	1.644
1.017	1.220	436.6	380.8	1.125	1.155	4.036	0.0	491	1.366
1.018	1.367	151.0	380.2	1.455	1.270	4.036	0.0	375	1.385

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.967	21.3	225	Circular	50.650	49.225	1.200	50.650	48.710	1.715
2.000	8.800	97.8	225	Circular	50.575	48.800	1.550	50.650	48.710	1.715
1.001	26.370	54.4	300	Circular	50.650	48.635	1.715	49.650	48.150	1.200
1.002	29.169	73.0	375	Circular	49.650	48.075	1.200	49.500	47.675	1.450
1.003	25.317	74.5	375	Circular	49.500	47.675	1.450	49.050	47.335	1.340
1.004	33.703	73.3	375	Circular	49.050	47.335	1.340	48.450	46.875	1.200
1.005	26.373	27.8	375	Circular	48.450	46.875	1.200	47.500	45.925	1.200
1.006	19.132	47.8	450	Circular	47.500	45.850	1.200	47.100	45.450	1.200
1.007	20.175	100.9	450	Circular	47.100	45.450	1.200	46.900	45.250	1.200
1.008	33.860	294.4	450	Circular	46.900	45.250	1.200	47.150	45.135	1.565
3.000	17.641	29.4	225	Circular	49.750	48.325	1.200	49.150	47.725	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1350	Manhole	Adoptable	S3	1200	Manhole	Adoptable
2.000	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.001	S3	1200	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.002	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.003	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.004	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.005	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.006	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.007	S9	1350	Manhole	Adoptable	S10	1350	Manhole	Adoptable
1.008	S10	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
3.000	S11	1350	Manhole	Adoptable	S12	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.001	23.437	28.4	225	Circular	49.150	47.725	1.200	48.325	46.900	1.200
4.000	11.359	90.9	225	Circular	48.550	47.125	1.200	48.425	47.000	1.200
4.001	12.846	128.5	225	Circular	48.425	47.000	1.200	48.325	46.900	1.200
3.002	33.075	69.6	375	Circular	48.325	46.750	1.200	47.850	46.275	1.200
3.003	22.405	64.0	375	Circular	47.850	46.275	1.200	47.500	45.925	1.200
3.004	17.660	64.2	375	Circular	47.500	45.925	1.200	47.225	45.650	1.200
3.005	24.153	81.9	375	Circular	47.225	45.650	1.200	47.300	45.355	1.570
3.006	11.493	79.3	375	Circular	47.300	45.355	1.570	47.150	45.210	1.565
1.009	23.334	36.7	450	Circular	47.150	45.135	1.565	45.900	44.500	0.950
1.009a	31.730	317.3	450	Circular	45.900	44.500	0.950	45.900	44.400	1.050
1.010	14.865	148.6	450	Circular	45.900	44.400	1.050	45.900	44.300	1.150
1.011	63.111	140.2	300	Circular	45.900	44.300	1.300	45.350	43.850	1.200
1.012	39.370	46.3	300	Circular	45.350	43.850	1.200	44.500	43.000	1.200
1.013	19.071	146.7	300	Circular	44.500	43.000	1.200	44.500	42.870	1.330
1.014	25.053	147.4	300	Circular	44.500	42.870	1.330	44.350	42.700	1.350
1.015	77.353	148.8	300	Circular	44.350	42.700	1.350	43.800	42.180	1.320
5.000	26.377	150.7	225	Circular	47.125	45.700	1.200	47.300	45.525	1.550
5.001	17.515	13.8	225	Circular	47.300	45.525	1.550	47.000	44.255	2.520
6.000	15.033	100.0	300	Circular	46.200	44.700	1.200	46.600	44.550	1.750
6.001	24.649	100.6	300	Circular	46.600	44.550	1.750	47.125	44.305	2.520
6.002	12.208	97.7	300	Circular	47.125	44.305	2.520	47.000	44.180	2.520
5.002	8.503	189.0	300	Circular	47.000	44.180	2.520	46.750	44.135	2.315
5.003	46.635	37.6	300	Circular	46.750	44.135	2.315	45.250	42.895	2.055
7.000	63.384	99.8	300	Circular	45.100	43.600	1.200	45.250	42.965	1.985
7.001	6.829	97.6	300	Circular	45.250	42.965	1.985	45.250	42.895	2.055

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.001	S12	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
4.000	S13	1350	Manhole	Adoptable	S14	1350	Manhole	Adoptable
4.001	S14	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
3.002	S15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
3.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
3.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
3.005	S18	1350	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.006	S19	1200	Manhole	Adoptable	S20	1350	Manhole	Adoptable
1.009	S20	1350	Manhole	Adoptable	S21		Junction	
1.009a	S21		Junction		S22		Junction	
1.010	S22		Junction		S23	2100	Manhole	Adoptable
1.011	S23	2100	Manhole	Adoptable	S24	1350	Manhole	Adoptable
1.012	S24	1350	Manhole	Adoptable	S25	1350	Manhole	Adoptable
1.013	S25	1350	Manhole	Adoptable	S26	1350	Manhole	Adoptable
1.014	S26	1350	Manhole	Adoptable	S27	1350	Manhole	Adoptable
1.015	S27	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
5.000	S28	1350	Manhole	Adoptable	S29	1200	Manhole	Adoptable
5.001	S29	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
6.000	S30	1200	Manhole	Adoptable	S31	1200	Manhole	Adoptable
6.001	S31	1200	Manhole	Adoptable	S32	1200	Manhole	Adoptable
6.002	S32	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
5.002	S33	1200	Manhole	Adoptable	S34	1200	Manhole	Adoptable
5.003	S34	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable
7.000	S35	1350	Manhole	Adoptable	S36	1200	Manhole	Adoptable
7.001	S36	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.004	16.200	250.0	450	Circular	45.250	42.745	2.055	44.700	42.680	1.570
5.005	44.360	68.2	450	Circular	44.700	42.680	1.570	43.800	42.030	1.320
1.016	13.429	14.4	450	Circular	43.800	42.030	1.320	43.000	41.100	1.450
1.016a	22.706	47.8	450	Circular	43.000	41.100	1.450	42.200	40.625	1.125
8.000	68.920	27.8	300	Circular	50.975	49.475	1.200	48.500	47.000	1.200
8.001	27.643	110.6	375	Circular	48.500	46.925	1.200	48.250	46.675	1.200
8.002	26.771	97.4	375	Circular	48.250	46.675	1.200	47.975	46.400	1.200
8.003	54.096	55.5	450	Circular	47.975	46.325	1.200	47.000	45.350	1.200
8.004	12.906	47.8	450	Circular	47.000	45.350	1.200	46.775	45.080	1.245
8.005	19.268	35.7	450	Circular	46.775	45.080	1.245	46.500	44.540	1.510
9.000	42.620	243.5	300	Circular	48.525	47.025	1.200	48.350	46.850	1.200
9.001	32.921	41.2	375	Circular	48.350	46.775	1.200	47.550	45.975	1.200
9.002	13.103	65.5	375	Circular	47.550	45.975	1.200	47.350	45.775	1.200
9.003	23.812	24.4	375	Circular	47.350	45.775	1.200	46.725	44.800	1.550
9.004	46.463	251.2	450	Circular	46.725	44.725	1.550	46.500	44.540	1.510
8.006	19.085	212.1	600	Circular	46.500	44.390	1.510	46.100	44.300	1.200
8.007	53.980	20.5	600	Circular	46.100	44.300	1.200	44.150	41.670	1.880
10.000	19.665	98.3	225	Circular	46.375	44.950	1.200	46.700	44.750	1.725
10.001	13.367	99.0	300	Circular	46.700	44.675	1.725	46.375	44.540	1.535
10.002	74.213	29.3	300	Circular	46.375	44.540	1.535	43.750	42.005	1.445
10.003	55.686	1591.0	600	Circular	43.750	41.705	1.445	44.150	41.670	1.880
8.008	51.470	72.0	675	Circular	44.150	41.595	1.880	42.950	40.880	1.395
8.009	18.760	73.6	675	Circular	42.950	40.880	1.395	42.950	40.625	1.650
8.010	15.258	610.3	675	Circular	42.950	40.625	1.650	42.700	40.600	1.425
8.011	40.555	202.8	675	Circular	42.700	40.600	1.425	42.200	40.400	1.125

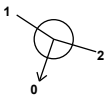
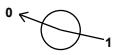
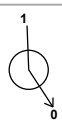
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.004	S37	1350	Manhole	Adoptable	S38	1350	Manhole	Adoptable
5.005	S38	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
1.016	S39	1350	Manhole	Adoptable	S40		Junction	
1.016a	S40		Junction		S62		Junction	
8.000	S41	1350	Manhole	Adoptable	S42	1200	Manhole	Adoptable
8.001	S42	1200	Manhole	Adoptable	S43	1200	Manhole	Adoptable
8.002	S43	1200	Manhole	Adoptable	S44	1200	Manhole	Adoptable
8.003	S44	1200	Manhole	Adoptable	S45	1350	Manhole	Adoptable
8.004	S45	1350	Manhole	Adoptable	S46	1350	Manhole	Adoptable
8.005	S46	1350	Manhole	Adoptable	S52	1350	Manhole	Adoptable
9.000	S47	1200	Manhole	Adoptable	S48	1350	Manhole	Adoptable
9.001	S48	1350	Manhole	Adoptable	S49	1350	Manhole	Adoptable
9.002	S49	1350	Manhole	Adoptable	S50	1350	Manhole	Adoptable
9.003	S50	1350	Manhole	Adoptable	S51	1200	Manhole	Adoptable
9.004	S51	1200	Manhole	Adoptable	S52	1350	Manhole	Adoptable
8.006	S52	1350	Manhole	Adoptable	S53	1350	Manhole	Adoptable
8.007	S53	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
10.000	S54	1350	Manhole	Adoptable	S55	1200	Manhole	Adoptable
10.001	S55	1200	Manhole	Adoptable	S56	1200	Manhole	Adoptable
10.002	S56	1200	Manhole	Adoptable	S57	1350	Manhole	Adoptable
10.003	S57	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
8.008	S58	2100	Manhole	Adoptable	S59	1350	Manhole	Adoptable
8.009	S59	1350	Manhole	Adoptable	S60	1350	Manhole	Adoptable
8.010	S60	1350	Manhole	Adoptable	S61		Junction	
8.011	S61		Junction		S62		Junction	

Pipeline Schedule

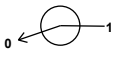
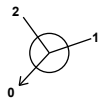
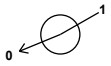
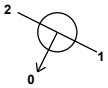
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.017	13.692	456.4	675	Circular	42.200	40.400	1.125	42.200	40.370	1.155
1.018	2.622	174.8	375	Circular	42.200	40.370	1.455	42.000	40.355	1.270

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.017	S62		Junction		S63	2700	Manhole	Adoptable
1.018	S63	2700	Manhole	Adoptable	S64	1200	Manhole	Adoptable

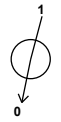
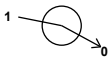
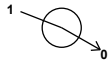
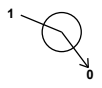
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	510217.869	117309.804	50.650	1.425	1350		0	1.000	49.225	225
S2	510199.990	117317.737	50.575	1.775	1200		0	2.000	48.800	225
S3	510207.354	117312.920	50.650	2.015	1200		1	2.000	48.710	225
							2	1.000	48.710	225
							0	1.001	48.635	300
S4	510198.830	117287.966	49.650	1.575	1350		1	1.001	48.150	300
							0	1.002	48.075	375
S5	510192.742	117259.439	49.500	1.825	1350		1	1.002	47.675	375
							0	1.003	47.675	375
S6	510168.011	117264.856	49.050	1.715	1350		1	1.003	47.335	375
							0	1.004	47.335	375
S7	510136.486	117276.775	48.450	1.575	1350		1	1.004	46.875	375
							0	1.005	46.875	375
S8	510125.725	117252.697	47.500	1.650	1350		1	1.005	45.925	375
							0	1.006	45.850	450
S9	510126.450	117233.579	47.100	1.650	1350		1	1.006	45.450	450
							0	1.007	45.450	450
S10	510137.466	117216.677	46.900	1.650	1350		1	1.007	45.250	450
							0	1.008	45.250	450

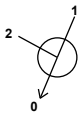
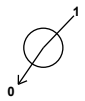
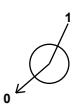
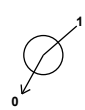
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	510222.928	117247.914	49.750	1.425	1350		0 3.000	48.325	225
S12	510238.181	117239.052	49.150	1.425	1350		1 3.000 0 3.001	47.725 47.725	225 225
S13	510275.499	117224.126	48.550	1.425	1350		0 4.000	47.125	225
S14	510264.141	117224.263	48.425	1.425	1350		1 4.000 0 4.001	47.000 47.000	225 225
S15	510251.984	117220.111	48.325	1.575	1350		1 4.001 2 3.001 0 3.002	46.900 46.900 46.750	225 225 375
S16	510229.514	117195.840	47.850	1.575	1350		1 3.002 0 3.003	46.275 46.275	375 375
S17	510210.055	117184.735	47.500	1.575	1350		1 3.003 0 3.004	45.925 45.925	375 375
S18	510193.715	117178.036	47.225	1.575	1350		1 3.004 0 3.005	45.650 45.650	375 375
S19	510178.040	117196.411	47.300	1.945	1200		1 3.005 0 3.006	45.355 45.355	375 375
S20	510167.758	117201.547	47.150	2.015	1350		1 3.006 2 1.008 0 1.009	45.210 45.135 45.135	375 450 450
S21	510157.332	117180.672	45.900	1.400			1 1.009 0 1.009a	44.500 44.500	450 450
S22	510126.179	117174.651	45.900	1.500			1 1.009a 0 1.010	44.400 44.400	450 450
S23	510113.478	117166.928	45.900	1.600	2100		1 1.010 0 1.011	44.300 44.300	450 300

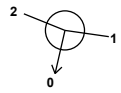
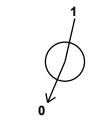
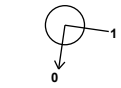
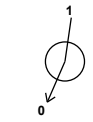
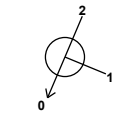
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	510089.528	117108.538	45.350	1.500	1350	 1	1.011	43.850	300
						0	1.012	43.850	300
S25	510079.463	117070.476	44.500	1.500	1350	 1	1.012	43.000	300
						0	1.013	43.000	300
S26	510075.631	117051.794	44.500	1.630	1350	 1	1.013	42.870	300
						0	1.014	42.870	300
S27	510100.203	117046.907	44.350	1.650	1350	 1	1.014	42.700	300
						0	1.015	42.700	300
S28	510203.209	117149.545	47.125	1.425	1350				
						0	5.000	45.700	225
S29	510218.193	117127.837	47.300	1.775	1200	 1	5.000	45.525	225
						0	5.001	45.525	225
S30	510160.812	117142.303	46.200	1.500	1200				
						0	6.000	44.700	300
S31	510174.809	117136.819	46.600	2.050	1200	 1	6.000	44.550	300
						0	6.001	44.550	300
S32	510196.228	117124.621	47.125	2.820	1200	 1	6.001	44.305	300
						0	6.002	44.305	300
S33	510205.085	117116.220	47.000	2.820	1200	 1	5.001	44.255	225
						2	6.002	44.180	300
						0	5.002	44.180	300
S34	510199.300	117109.988	46.750	2.615	1200	 1	5.002	44.135	300
						0	5.003	44.135	300
S35	510119.407	117096.317	45.100	1.500	1350				
						0	7.000	43.600	300
S36	510177.986	117072.109	45.250	2.285	1200	 1	7.000	42.965	300
						0	7.001	42.965	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S37	510182.085	117066.647	45.250	2.505	1350		1	7.001	42.895	300
							2	5.003	42.895	300
							0	5.004	42.745	450
S38	510185.475	117050.806	44.700	2.020	1350		1	5.004	42.680	450
							0	5.005	42.680	450
S39	510168.164	117009.963	43.800	1.770	1350		1	5.005	42.030	450
							2	1.015	42.180	300
							0	1.016	42.030	450
S40	510162.966	116997.581	43.000	1.900			1	1.016	41.100	450
							0	1.016a	41.100	450
S41	510327.972	117263.441	50.975	1.500	1350		0	8.000	49.475	300
S42	510299.910	117200.493	48.500	1.575	1200		1	8.000	47.000	300
							0	8.001	46.925	375
S43	510287.138	117175.978	48.250	1.575	1200		1	8.001	46.675	375
							0	8.002	46.675	375
S44	510268.634	117156.631	47.975	1.650	1200		1	8.002	46.400	375
							0	8.003	46.325	450
S45	510238.052	117112.009	47.000	1.650	1350		1	8.003	45.350	450
							0	8.004	45.350	450
S46	510248.394	117104.288	46.775	1.695	1350		1	8.004	45.080	450
							0	8.005	45.080	450
S47	510364.633	117185.808	48.525	1.500	1200		0	9.000	47.025	300
S48	510346.623	117147.180	48.350	1.575	1350		1	9.000	46.850	300
							0	9.001	46.775	375
S49	510321.771	117125.589	47.550	1.575	1350		1	9.001	45.975	375
							0	9.002	45.975	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S50	510315.443	117114.115	47.350	1.575	1350	 1	9.002	45.775	375
						0	9.003	45.775	375
S51	510312.259	117090.517	46.725	2.000	1200	 1	9.003	44.800	375
						0	9.004	44.725	450
S52	510266.261	117097.074	46.500	2.110	1350	1	9.004	44.540	450
						 2	8.005	44.540	450
						0	8.006	44.390	600
S53	510262.007	117078.469	46.100	1.800	1350	 1	8.006	44.300	600
						0	8.007	44.300	600
S54	510343.342	117086.034	46.375	1.425	1350				
						0	10.000	44.950	225
S55	510323.878	117088.841	46.700	2.025	1200	1	10.000	44.750	225
									
						0	10.001	44.675	300
S56	510321.970	117075.611	46.375	1.835	1200	 1	10.001	44.540	300
						0	10.002	44.540	300
S57	510292.373	117007.555	43.750	2.045	1350	 1	10.002	42.005	300
						0	10.003	41.705	600
S58	510240.894	117028.789	44.150	2.555	2100	 1	10.003	41.670	600
						2	8.007	41.670	600
						0	8.008	41.595	675
S59	510220.675	116981.457	42.950	2.070	1350	 1	8.008	40.880	675
						0	8.009	40.880	675
S60	510203.368	116988.697	42.950	2.325	1350	 1	8.009	40.625	675
						0	8.010	40.625	675
S61	510188.721	116984.423	42.700	2.100		 1	8.010	40.600	675
						0	8.011	40.600	675
S62	510148.389	116980.172	42.200	1.800		1	8.011	40.400	675
						 2	1.016a	40.625	450
						0	1.017	40.400	675

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S63	510134.728	116981.088	42.200	1.830	2700	1	1.017	40.370	675
									
						0	1.018	40.370	375
S64	510132.248	116980.238	42.000	1.645	1200	1	1.018	40.355	375
									

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	0.950	Additional Storage (m³/ha)	20.0		

Storm Durations

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

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

Node S23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.300	Product Number	CTL-SHE-0060-1800-1300-1800
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.8	Min Node Diameter (mm)	1200

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	40.370	Product Number	CTL-SHE-0190-1980-1530-1980
Design Depth (m)	1.530	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.8	Min Node Diameter (mm)	1800

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	41.000	Product Number	CTL-SCU-0216-4360-0900-4360
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	43.6	Min Node Diameter (mm)	1200

Node S22 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	44.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	9960

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	706.8	706.8	1.200	1491.0	1503.2	1.500	1723.0	1739.0

Node S62 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	40.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	408

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	748.0	748.0	1.500	1830.0	1845.9	1.800	2089.0	2109.2

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	18	49.288	0.063	17.2	0.1798	0.0000	OK
30 minute summer	S2	18	48.879	0.079	12.1	0.1532	0.0000	OK
30 minute summer	S3	18	48.734	0.099	33.3	0.1361	0.0000	OK
30 minute summer	S4	18	48.183	0.108	41.7	0.2225	0.0000	OK
30 minute summer	S5	18	47.809	0.134	58.5	0.3374	0.0000	OK
30 minute summer	S6	18	47.473	0.138	61.8	0.2298	0.0000	OK
30 minute summer	S7	18	46.994	0.119	76.6	0.3070	0.0000	OK
30 minute summer	S8	18	45.981	0.131	80.3	0.2285	0.0000	OK
30 minute summer	S9	18	45.631	0.181	88.1	0.3636	0.0000	OK
30 minute summer	S10	19	45.481	0.231	96.2	0.4786	0.0000	OK
30 minute summer	S11	18	48.381	0.056	13.0	0.1398	0.0000	OK
30 minute summer	S12	18	47.802	0.077	23.1	0.1749	0.0000	OK
30 minute summer	S13	18	47.197	0.072	11.0	0.1691	0.0000	OK
30 minute summer	S14	18	47.079	0.079	11.0	0.1129	0.0000	OK
30 minute summer	S15	18	46.874	0.124	54.3	0.3665	0.0000	OK
30 minute summer	S16	18	46.408	0.133	61.2	0.2596	0.0000	OK
30 minute summer	S17	18	46.060	0.135	61.1	0.1925	0.0000	OK
30 minute summer	S18	18	45.810	0.160	75.6	0.4065	0.0000	OK
30 minute summer	S19	18	45.538	0.183	87.1	0.3414	0.0000	OK
30 minute summer	S20	19	45.319	0.184	183.5	0.2633	0.0000	OK
10080 minute summer	S21	6840	44.835	0.335	6.0	0.0000	0.0000	OK
10080 minute summer	S22	6840	44.835	0.435	8.6	369.6440	0.0000	OK
10080 minute summer	S23	6900	44.837	0.537	7.5	1.8601	0.0000	SURCHARGED
30 minute summer	S24	18	43.927	0.077	24.1	0.2525	0.0000	OK
30 minute summer	S25	18	43.109	0.109	23.9	0.1560	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	17.2	1.985	0.152	0.0950	
30 minute summer	S2	2.000	S3	12.1	1.029	0.230	0.1035	
30 minute summer	S3	1.001	S4	33.3	1.687	0.221	0.5207	
30 minute summer	S4	1.002	S5	41.8	1.361	0.178	0.8967	
30 minute summer	S5	1.003	S6	58.4	1.619	0.252	0.9132	
30 minute summer	S6	1.004	S7	61.4	1.840	0.263	1.1270	
30 minute summer	S7	1.005	S8	75.9	2.633	0.199	0.7614	
30 minute summer	S8	1.006	S9	80.0	1.649	0.171	0.9343	
30 minute summer	S9	1.007	S10	88.1	1.249	0.274	1.4243	
30 minute summer	S10	1.008	S20	97.2	1.364	0.518	2.4172	
30 minute summer	S11	3.000	S12	13.0	1.336	0.135	0.1729	
30 minute summer	S12	3.001	S15	23.1	1.979	0.236	0.2735	
30 minute summer	S13	4.000	S14	11.0	0.944	0.202	0.1327	
30 minute summer	S14	4.001	S15	11.0	0.921	0.240	0.1533	
30 minute summer	S15	3.002	S16	54.3	1.628	0.226	1.1034	
30 minute summer	S16	3.003	S17	61.1	1.735	0.244	0.7895	
30 minute summer	S17	3.004	S18	60.9	1.523	0.244	0.7103	
30 minute summer	S18	3.005	S19	75.1	1.529	0.339	1.1893	
30 minute summer	S19	3.006	S20	86.2	1.769	0.383	0.5623	
30 minute summer	S20	1.009	S21	184.2	2.002	0.345	2.1326	
30 minute summer	S21	1.009a	S22	183.1	2.768	1.014	2.1790	
30 minute winter	S22	1.010	S23	13.8	0.441	0.052	1.0503	
7200 minute winter	S23	1.011	S24	1.5	0.568	0.016	0.1780	
30 minute summer	S24	1.012	S25	23.9	1.287	0.146	0.7349	
30 minute summer	S25	1.013	S26	23.6	1.056	0.257	0.4258	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	19	42.974	0.104	23.6	0.1488	0.0000	OK
30 minute summer	S27	19	42.849	0.149	45.1	0.4492	0.0000	OK
30 minute summer	S28	18	45.812	0.112	18.4	0.3320	0.0000	OK
30 minute summer	S29	18	45.580	0.055	18.4	0.0619	0.0000	OK
30 minute summer	S30	18	44.775	0.075	14.2	0.1691	0.0000	OK
30 minute summer	S31	18	44.634	0.084	17.7	0.1118	0.0000	OK
30 minute summer	S32	18	44.385	0.080	17.7	0.0902	0.0000	OK
30 minute summer	S33	18	44.364	0.184	54.3	0.3493	0.0000	OK
30 minute summer	S34	18	44.272	0.137	73.4	0.2737	0.0000	OK
30 minute summer	S35	18	43.705	0.105	29.3	0.3924	0.0000	OK
30 minute summer	S36	18	43.082	0.117	29.4	0.1323	0.0000	OK
30 minute summer	S37	18	42.977	0.232	105.2	0.3677	0.0000	OK
30 minute summer	S38	18	42.860	0.180	116.0	0.3745	0.0000	OK
30 minute summer	S39	19	42.163	0.133	158.8	0.1906	0.0000	OK
30 minute summer	S40	19	41.278	0.178	159.2	0.0000	0.0000	OK
30 minute summer	S41	18	49.565	0.090	41.1	0.4238	0.0000	OK
30 minute summer	S42	18	47.071	0.146	56.3	0.3346	0.0000	OK
30 minute summer	S43	18	46.836	0.161	70.5	0.3566	0.0000	OK
30 minute summer	S44	18	46.463	0.138	89.7	0.3508	0.0000	OK
30 minute summer	S45	18	45.512	0.162	105.1	0.4175	0.0000	OK
30 minute summer	S46	18	45.231	0.151	112.1	0.3009	0.0000	OK
30 minute summer	S47	18	47.184	0.159	37.6	0.6545	0.0000	OK
30 minute summer	S48	18	46.887	0.112	62.0	0.3702	0.0000	OK
30 minute summer	S49	18	46.118	0.143	61.8	0.2044	0.0000	OK
30 minute summer	S50	18	45.872	0.097	61.5	0.1393	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	23.8	0.845	0.261	0.7080	
30 minute summer	S27	1.015	S39	43.6	1.275	0.480	2.6471	
30 minute summer	S28	5.000	S29	18.4	1.376	0.436	0.3588	
30 minute summer	S29	5.001	S33	18.4	1.816	0.131	0.2323	
30 minute summer	S30	6.000	S31	14.2	0.954	0.128	0.2240	
30 minute summer	S31	6.001	S32	17.7	1.144	0.160	0.3823	
30 minute summer	S32	6.002	S33	17.7	0.594	0.157	0.3682	
30 minute summer	S33	5.002	S34	54.2	1.415	0.673	0.3255	
30 minute summer	S34	5.003	S37	73.0	2.402	0.401	1.4167	
30 minute summer	S35	7.000	S36	29.4	1.246	0.264	1.4974	
30 minute summer	S36	7.001	S37	29.0	1.242	0.258	0.1597	
30 minute summer	S37	5.004	S38	104.9	1.487	0.515	1.1462	
30 minute summer	S38	5.005	S39	115.1	2.369	0.294	2.1637	
30 minute summer	S39	1.016	S40	159.2	3.277	0.186	0.6546	
30 minute summer	S40	1.016a	S62	159.6	2.739	0.341	1.3237	
30 minute summer	S41	8.000	S42	41.0	2.321	0.194	1.2168	
30 minute summer	S42	8.001	S43	56.2	1.322	0.296	1.1760	
30 minute summer	S43	8.002	S44	70.1	1.624	0.345	1.1559	
30 minute summer	S44	8.003	S45	89.3	1.934	0.206	2.5022	
30 minute summer	S45	8.004	S46	104.0	2.130	0.222	0.6322	
30 minute summer	S46	8.005	S52	111.9	2.575	0.206	0.8378	
30 minute summer	S47	9.000	S48	37.2	1.021	0.524	1.5515	
30 minute summer	S48	9.001	S49	61.8	1.873	0.198	1.0892	
30 minute summer	S49	9.002	S50	61.5	2.024	0.248	0.4007	
30 minute summer	S50	9.003	S51	61.3	2.197	0.151	0.6913	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	19	44.935	0.210	86.1	0.5454	0.0000	OK
30 minute summer	S52	19	44.664	0.274	197.3	0.3923	0.0000	OK
30 minute summer	S53	19	44.460	0.160	233.2	0.6393	0.0000	OK
30 minute summer	S54	18	45.026	0.076	12.1	0.1859	0.0000	OK
30 minute summer	S55	18	44.744	0.069	12.1	0.0782	0.0000	OK
30 minute summer	S56	18	44.637	0.097	45.8	0.3203	0.0000	OK
30 minute summer	S57	19	41.906	0.201	45.4	0.2882	0.0000	OK
30 minute summer	S58	19	41.839	0.244	295.4	1.0531	0.0000	OK
30 minute summer	S59	19	41.185	0.305	312.7	0.7286	0.0000	OK
480 minute summer	S60	392	41.035	0.410	81.2	0.8012	0.0000	OK
480 minute summer	S61	352	41.042	0.442	81.1	0.0000	0.0000	OK
480 minute summer	S62	368	41.003	0.603	121.3	582.6320	0.0000	OK
480 minute summer	S63	368	41.003	0.633	20.5	3.6263	0.0000	SURCHARGED
360 minute winter	S64	424	40.445	0.090	19.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	85.4	1.219	0.420	3.2545	
30 minute summer	S52	8.006	S53	197.9	2.152	0.420	1.7730	
30 minute summer	S53	8.007	S58	234.3	3.730	0.154	3.3906	
30 minute summer	S54	10.000	S55	12.1	1.054	0.231	0.2257	
30 minute summer	S55	10.001	S56	12.1	0.763	0.108	0.2130	
30 minute summer	S56	10.002	S57	45.4	2.346	0.220	1.4376	
30 minute summer	S57	10.003	S58	44.5	0.604	0.262	4.1255	
30 minute summer	S58	8.008	S59	297.5	2.182	0.269	7.0269	
30 minute summer	S59	8.009	S60	312.2	1.726	0.285	3.3935	
30 minute summer	S60	8.010	S61	320.5	1.720	0.850	2.8428	
30 minute summer	S61	8.011	S62	318.0	2.977	0.484	5.1150	
120 minute summer	S62	1.017	S63	21.2	0.316	0.049	3.9837	
360 minute winter	S63	1.018	S64	19.8	0.879	0.131	0.0590	1169.4

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	17	49.360	0.135	64.7	0.3864	0.0000	OK
30 minute summer	S2	18	48.986	0.186	45.7	0.3615	0.0000	OK
30 minute summer	S3	19	48.873	0.238	125.6	0.3255	0.0000	OK
30 minute summer	S4	20	48.618	0.543	157.3	1.1218	0.0000	SURCHARGED
30 minute summer	S5	20	48.453	0.778	213.9	1.9583	0.0000	SURCHARGED
30 minute summer	S6	20	48.172	0.837	220.2	1.3943	0.0000	SURCHARGED
30 minute summer	S7	20	47.774	0.899	270.8	2.3131	0.0000	SURCHARGED
30 minute summer	S8	20	47.278	1.428	258.8	2.4947	0.0000	FLOOD RISK
30 minute summer	S9	20	47.100	1.650	273.3	3.3215	0.2057	FLOOD
30 minute summer	S10	20	46.883	1.633	300.4	3.3862	0.0000	FLOOD RISK
30 minute summer	S11	20	48.475	0.150	48.9	0.3762	0.0000	OK
30 minute summer	S12	20	48.384	0.659	86.5	1.4976	0.0000	SURCHARGED
30 minute summer	S13	20	48.025	0.900	41.2	2.1106	0.0000	SURCHARGED
30 minute summer	S14	20	47.970	0.970	40.4	1.3881	0.0000	SURCHARGED
30 minute summer	S15	20	47.906	1.156	200.3	3.4155	0.0000	SURCHARGED
30 minute summer	S16	20	47.655	1.380	194.7	2.6932	0.0000	FLOOD RISK
30 minute summer	S17	20	47.417	1.492	184.0	2.1352	0.0000	FLOOD RISK
30 minute summer	S18	20	47.214	1.564	216.1	3.9653	0.0000	FLOOD RISK
30 minute summer	S19	20	46.825	1.470	250.9	2.7354	0.0000	SURCHARGED
30 minute summer	S20	20	46.510	1.375	544.9	1.9669	0.0000	SURCHARGED
30 minute summer	S21	20	45.684	1.184	545.4	0.0000	0.0000	FLOOD RISK
10080 minute winter	S22	7800	45.489	1.089	9.3	1157.3570	0.0000	SURCHARGED
10080 minute winter	S23	7800	45.489	1.189	7.6	4.1190	0.0000	SURCHARGED
30 minute summer	S24	20	44.063	0.213	89.7	0.6999	0.0000	OK
30 minute summer	S25	20	43.927	0.927	87.1	1.3267	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	64.7	2.502	0.571	0.2984	
30 minute summer	S2	2.000	S3	45.7	1.393	0.869	0.2877	
30 minute summer	S3	1.001	S4	125.6	2.279	0.832	1.7180	
30 minute summer	S4	1.002	S5	151.1	1.665	0.645	3.2173	
30 minute summer	S5	1.003	S6	207.5	2.048	0.894	2.7924	
30 minute summer	S6	1.004	S7	213.7	2.275	0.913	3.7173	
30 minute summer	S7	1.005	S8	242.3	3.357	0.636	2.9089	
30 minute summer	S8	1.006	S9	250.5	1.822	0.535	3.0313	
30 minute summer	S9	1.007	S10	269.8	1.703	0.838	3.1966	
30 minute summer	S10	1.008	S20	297.0	1.875	1.583	5.3649	
30 minute summer	S11	3.000	S12	48.4	1.773	0.502	0.5983	
30 minute summer	S12	3.001	S15	86.5	2.577	0.883	0.9321	
30 minute summer	S13	4.000	S14	40.4	1.216	0.740	0.4518	
30 minute summer	S14	4.001	S15	42.9	1.196	0.937	0.5109	
30 minute summer	S15	3.002	S16	171.0	2.007	0.712	3.6481	
30 minute summer	S16	3.003	S17	184.0	1.983	0.735	2.4712	
30 minute summer	S17	3.004	S18	176.5	1.638	0.706	1.9478	
30 minute summer	S18	3.005	S19	216.8	1.965	0.980	2.6640	
30 minute summer	S19	3.006	S20	250.8	2.274	1.115	1.2676	
30 minute summer	S20	1.009	S21	545.4	3.443	1.020	3.6971	
30 minute summer	S21	1.009a	S22	546.1	3.902	3.024	4.9736	
30 minute summer	S22	1.010	S23	31.9	0.530	0.120	2.3553	
10080 minute winter	S23	1.011	S24	1.7	0.594	0.018	0.1926	
30 minute summer	S24	1.012	S25	87.1	1.704	0.532	2.4396	
30 minute summer	S25	1.013	S26	75.6	1.263	0.826	1.3430	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	20	43.819	0.949	75.6	1.3578	0.0000	SURCHARGED
30 minute summer	S27	19	43.693	0.993	145.2	2.9967	0.0000	SURCHARGED
30 minute summer	S28	20	46.452	0.752	69.2	2.2259	0.0000	SURCHARGED
30 minute summer	S29	20	46.103	0.578	64.7	0.6540	0.0000	SURCHARGED
30 minute summer	S30	20	45.997	1.297	53.3	2.9202	0.0000	FLOOD RISK
30 minute summer	S31	20	45.966	1.416	58.9	1.8917	0.0000	SURCHARGED
30 minute summer	S32	20	45.890	1.585	58.1	1.7926	0.0000	SURCHARGED
30 minute summer	S33	20	45.841	1.661	162.1	3.1507	0.0000	SURCHARGED
30 minute summer	S34	19	45.513	1.378	223.0	2.7603	0.0000	SURCHARGED
30 minute summer	S35	19	44.099	0.499	110.4	1.8721	0.0000	SURCHARGED
30 minute summer	S36	19	43.485	0.520	102.6	0.5879	0.0000	SURCHARGED
30 minute summer	S37	19	43.370	0.625	332.4	0.9900	0.0000	SURCHARGED
30 minute summer	S38	19	43.074	0.394	370.3	0.8220	0.0000	OK
30 minute summer	S39	19	42.309	0.279	506.2	0.3987	0.0000	OK
240 minute winter	S40	232	41.768	0.668	129.3	0.0000	0.0000	SURCHARGED
30 minute summer	S41	18	49.665	0.190	154.8	0.8915	0.0000	OK
30 minute summer	S42	18	47.712	0.787	211.4	1.7992	0.0000	SURCHARGED
30 minute summer	S43	18	47.328	0.653	257.5	1.4423	0.0000	SURCHARGED
30 minute summer	S44	18	46.632	0.307	329.9	0.7815	0.0000	OK
30 minute summer	S45	19	45.881	0.531	387.2	1.3651	0.0000	SURCHARGED
30 minute summer	S46	19	45.564	0.484	408.2	0.9672	0.0000	SURCHARGED
30 minute summer	S47	18	47.862	0.837	141.5	3.4354	0.0000	SURCHARGED
30 minute summer	S48	18	47.031	0.256	230.0	0.8457	0.0000	OK
30 minute summer	S49	18	46.326	0.351	229.2	0.5019	0.0000	OK
30 minute summer	S50	19	46.056	0.281	226.1	0.4016	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	78.6	1.116	0.860	1.7642	
30 minute summer	S27	1.015	S39	136.5	1.938	1.500	5.3412	
30 minute summer	S28	5.000	S29	64.7	1.751	1.531	1.0490	
30 minute summer	S29	5.001	S33	58.2	1.841	0.413	0.6966	
30 minute summer	S30	6.000	S31	46.8	1.232	0.421	1.0586	
30 minute winter	S31	6.001	S32	60.5	1.236	0.546	1.7358	
30 minute summer	S32	6.002	S33	68.7	0.975	0.611	0.8597	
30 minute summer	S33	5.002	S34	164.0	2.330	2.035	0.5988	
30 minute summer	S34	5.003	S37	220.3	3.129	1.212	3.2840	
30 minute summer	S35	7.000	S36	102.6	1.476	0.922	4.4635	
30 minute summer	S36	7.001	S37	102.5	1.456	0.911	0.4809	
30 minute summer	S37	5.004	S38	332.2	2.101	1.630	2.4759	
30 minute summer	S38	5.005	S39	369.7	2.922	0.944	5.5516	
30 minute summer	S39	1.016	S40	505.3	4.004	0.592	1.7123	
30 minute summer	S40	1.016a	S62	504.1	3.434	1.076	3.5204	
30 minute summer	S41	8.000	S42	153.7	2.626	0.727	4.0504	
30 minute summer	S42	8.001	S43	205.3	1.862	1.080	3.0489	
30 minute summer	S43	8.002	S44	256.5	2.325	1.265	2.9097	
30 minute summer	S44	8.003	S45	327.7	2.374	0.754	7.3643	
30 minute summer	S45	8.004	S46	377.7	2.604	0.806	2.0449	
30 minute summer	S46	8.005	S52	402.1	2.635	0.741	3.0529	
30 minute summer	S47	9.000	S48	136.7	1.941	1.928	2.9434	
30 minute summer	S48	9.001	S49	229.2	2.424	0.733	3.0868	
30 minute summer	S49	9.002	S50	226.1	2.558	0.913	1.2820	
30 minute summer	S50	9.003	S51	227.4	2.179	0.560	2.3665	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	19	45.641	0.916	315.6	2.3834	0.0000	SURCHARGED
30 minute summer	S52	19	45.101	0.711	714.6	1.0177	0.0000	SURCHARGED
30 minute summer	S53	19	44.666	0.366	851.4	1.4604	0.0000	OK
30 minute summer	S54	18	45.127	0.177	45.7	0.4328	0.0000	OK
30 minute summer	S55	18	44.827	0.151	45.7	0.1713	0.0000	OK
30 minute summer	S56	19	44.768	0.228	172.6	0.7540	0.0000	OK
30 minute summer	S57	20	43.189	1.484	168.7	2.1240	0.0000	SURCHARGED
30 minute summer	S58	20	43.157	1.562	1051.6	6.7323	0.0000	SURCHARGED
30 minute summer	S59	20	42.340	1.460	1078.1	3.4875	0.0000	SURCHARGED
30 minute summer	S60	20	41.868	1.243	1108.9	2.4320	0.0000	SURCHARGED
240 minute winter	S61	232	41.768	1.168	250.2	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.767	1.367	376.9	1697.2660	0.0000	SURCHARGED
240 minute winter	S63	232	41.767	1.397	58.1	7.9969	0.0000	SURCHARGED
240 minute winter	S64	232	40.514	0.159	58.1	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	314.0	1.982	1.545	7.3618	
30 minute summer	S52	8.006	S53	714.2	2.912	1.514	4.4074	
30 minute summer	S53	8.007	S58	840.6	3.960	0.552	12.4659	
30 minute summer	S54	10.000	S55	45.7	1.429	0.872	0.6279	
30 minute summer	S55	10.001	S56	45.7	1.008	0.410	0.6076	
30 minute summer	S56	10.002	S57	168.7	3.085	0.819	4.7424	
30 minute summer	S57	10.003	S58	150.1	0.809	0.883	15.6855	
30 minute summer	S58	8.008	S59	1031.7	2.890	0.933	18.3737	
30 minute summer	S59	8.009	S60	1078.7	3.022	0.986	6.6969	
30 minute summer	S60	8.010	S61	1106.3	3.100	2.935	5.4468	
30 minute summer	S61	8.011	S62	1105.1	3.257	1.681	14.4772	
240 minute winter	S62	1.017	S63	58.1	0.358	0.133	4.8877	
240 minute winter	S63	1.018	S64	58.1	1.177	0.385	0.1294	3056.4

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	20	50.347	1.122	85.2	3.2110	0.0000	SURCHARGED
30 minute summer	S2	20	50.193	1.393	60.1	2.7046	0.0000	SURCHARGED
30 minute summer	S3	20	50.080	1.445	144.9	1.9776	0.0000	SURCHARGED
30 minute summer	S4	20	49.600	1.525	175.9	3.1497	0.0000	FLOOD RISK
30 minute summer	S5	19	49.335	1.660	249.3	4.1757	0.0000	FLOOD RISK
30 minute summer	S6	19	48.881	1.546	244.4	2.5743	0.0000	FLOOD RISK
30 minute summer	S7	19	48.250	1.375	310.0	3.5400	0.0000	FLOOD RISK
30 minute summer	S8	19	47.410	1.560	327.7	2.7247	0.0000	FLOOD RISK
30 minute summer	S9	17	47.100	1.650	363.9	3.3215	24.0583	FLOOD
30 minute summer	S10	17	46.900	1.650	307.4	3.4221	2.1149	FLOOD
30 minute summer	S11	19	49.434	1.109	64.3	2.7863	0.0000	SURCHARGED
30 minute summer	S12	19	49.150	1.425	103.1	3.2390	0.9179	FLOOD
30 minute summer	S13	19	48.550	1.425	54.3	3.3402	0.2305	FLOOD
30 minute summer	S14	19	48.425	1.425	45.6	2.0392	0.3982	FLOOD
30 minute summer	S15	19	48.325	1.575	217.9	4.6541	0.3447	FLOOD
30 minute summer	S16	18	47.850	1.575	243.4	3.0744	4.8532	FLOOD
30 minute summer	S17	18	47.500	1.575	211.6	2.2538	1.6703	FLOOD
30 minute summer	S18	17	47.225	1.575	276.7	3.9942	14.2481	FLOOD
30 minute summer	S19	18	46.887	1.532	266.8	2.8508	0.0000	SURCHARGED
30 minute summer	S20	18	46.543	1.408	554.2	2.0146	0.0000	SURCHARGED
60 minute summer	S21	37	45.750	1.250	545.7	0.0000	0.0000	FLOOD RISK
10080 minute winter	S22	8100	45.699	1.299	10.5	1470.3380	0.0000	FLOOD RISK
10080 minute winter	S23	8100	45.699	1.399	7.3	4.8467	0.0000	FLOOD RISK
30 minute summer	S24	20	44.774	0.924	117.5	3.0342	0.0000	SURCHARGED
30 minute summer	S25	20	44.500	1.500	95.0	2.1465	0.4175	FLOOD

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S3	75.9	2.485	0.671	0.4362	
30 minute summer	S2	2.000	S3	50.8	1.359	0.966	0.3500	
30 minute summer	S3	1.001	S4	137.9	2.273	0.913	1.8570	
30 minute summer	S4	1.002	S5	174.1	1.654	0.743	3.2173	
30 minute summer	S5	1.003	S6	232.1	2.105	1.000	2.7924	
30 minute summer	S6	1.004	S7	247.3	2.259	1.057	3.7173	
30 minute summer	S7	1.005	S8	307.9	3.345	0.808	2.9089	
30 minute summer	S8	1.006	S9	327.4	2.067	0.699	3.0313	
30 minute summer	S9	1.007	S10	275.6	1.740	0.856	3.1966	
30 minute summer	S10	1.008	S20	297.4	1.877	1.585	5.3649	
30 minute summer	S11	3.000	S12	57.5	1.774	0.597	0.7016	
30 minute summer	S12	3.001	S15	89.1	2.582	0.909	0.9321	
30 minute summer	S13	4.000	S14	45.6	1.230	0.836	0.4518	
30 minute summer	S14	4.001	S15	43.1	1.214	0.940	0.5109	
30 minute summer	S15	3.002	S16	212.2	2.011	0.884	3.6481	
30 minute summer	S16	3.003	S17	211.6	2.008	0.845	2.4712	
30 minute summer	S17	3.004	S18	204.0	1.850	0.816	1.9478	
30 minute summer	S18	3.005	S19	222.2	2.015	1.004	2.6640	
30 minute summer	S19	3.006	S20	261.5	2.371	1.163	1.2676	
30 minute summer	S20	1.009	S21	549.9	3.471	1.029	3.6971	
30 minute summer	S21	1.009a	S22	549.9	4.051	3.045	5.0274	
60 minute winter	S22	1.010	S23	24.6	0.518	0.093	2.3553	
30 minute summer	S23	1.011	S24	-38.8	-0.572	-0.414	4.4442	
30 minute summer	S24	1.012	S25	95.0	1.728	0.580	2.7724	
30 minute summer	S25	1.013	S26	88.1	1.276	0.962	1.3430	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S26	20	44.361	1.491	88.1	2.1339	0.0000	FLOOD RISK
30 minute summer	S27	19	44.216	1.516	166.0	4.5782	0.0000	FLOOD RISK
30 minute summer	S28	18	47.125	1.425	91.1	4.2194	2.6670	FLOOD
30 minute summer	S29	18	46.670	1.145	69.2	1.2948	0.0000	SURCHARGED
30 minute summer	S30	18	46.200	1.500	110.4	3.3765	15.7881	FLOOD
30 minute summer	S31	18	46.250	1.700	61.2	2.2710	0.0000	SURCHARGED
30 minute summer	S32	18	46.300	1.995	54.7	2.2559	0.0000	SURCHARGED
30 minute summer	S33	18	46.326	2.146	171.6	4.0704	0.0000	SURCHARGED
30 minute summer	S34	18	46.106	1.971	245.1	3.9478	0.0000	SURCHARGED
30 minute summer	S35	19	44.966	1.366	145.3	5.1228	0.0000	FLOOD RISK
30 minute summer	S36	19	43.926	0.961	132.9	1.0870	0.0000	SURCHARGED
30 minute summer	S37	19	43.732	0.987	372.3	1.5618	0.0000	SURCHARGED
30 minute summer	S38	19	43.371	0.691	424.1	1.4413	0.0000	SURCHARGED
30 minute summer	S39	20	42.403	0.373	586.7	0.5343	0.0000	OK
240 minute winter	S40	232	42.048	0.948	164.7	0.0000	0.0000	SURCHARGED
30 minute summer	S41	19	50.562	1.087	203.7	5.0939	0.0000	SURCHARGED
30 minute summer	S42	18	48.500	1.575	249.2	3.6020	4.6800	FLOOD
30 minute summer	S43	19	48.129	1.454	309.4	3.2143	0.0000	FLOOD RISK
30 minute summer	S44	19	47.497	1.172	389.4	2.9870	0.0000	SURCHARGED
30 minute summer	S45	19	46.704	1.354	447.8	3.4805	0.0000	FLOOD RISK
30 minute summer	S46	19	46.289	1.209	473.3	2.4161	0.0000	SURCHARGED
30 minute summer	S47	18	48.525	1.500	186.2	6.1560	4.4923	FLOOD
30 minute summer	S48	19	47.787	1.012	280.1	3.3389	0.0000	SURCHARGED
30 minute summer	S49	19	47.164	1.189	258.1	1.7009	0.0000	SURCHARGED
30 minute summer	S50	19	46.842	1.067	252.4	1.5269	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S26	1.014	S27	92.5	1.313	1.012	1.7642	
30 minute summer	S27	1.015	S39	161.5	2.294	1.776	5.3920	
30 minute summer	S28	5.000	S29	69.2	1.829	1.637	1.0490	
30 minute summer	S29	5.001	S33	69.8	1.839	0.496	0.6966	
30 minute summer	S30	6.000	S31	48.4	1.203	0.435	1.0586	
30 minute winter	S31	6.001	S32	57.1	1.248	0.516	1.7358	
30 minute summer	S32	6.002	S33	69.3	0.985	0.617	0.8597	
30 minute summer	S33	5.002	S34	171.3	2.433	2.126	0.5988	
30 minute summer	S34	5.003	S37	232.5	3.302	1.279	3.2840	
30 minute summer	S35	7.000	S36	132.9	1.887	1.195	4.4635	
30 minute summer	S36	7.001	S37	133.3	1.893	1.185	0.4809	
30 minute summer	S37	5.004	S38	373.0	2.354	1.831	2.5668	
30 minute summer	S38	5.005	S39	425.2	2.917	1.085	6.6329	
30 minute summer	S39	1.016	S40	585.8	4.009	0.686	2.0079	
30 minute summer	S40	1.016a	S62	585.4	3.695	1.250	3.5976	
30 minute summer	S41	8.000	S42	180.1	2.623	0.852	4.8533	
30 minute summer	S42	8.001	S43	238.4	2.162	1.254	3.0489	
30 minute summer	S43	8.002	S44	291.7	2.645	1.438	2.9528	
30 minute summer	S44	8.003	S45	369.4	2.370	0.850	8.5712	
30 minute summer	S45	8.004	S46	433.2	2.735	0.925	2.0449	
30 minute summer	S46	8.005	S52	463.8	2.928	0.855	3.0529	
30 minute summer	S47	9.000	S48	157.4	2.235	2.220	3.0013	
30 minute summer	S48	9.001	S49	258.1	2.440	0.825	3.6311	
30 minute summer	S49	9.002	S50	252.4	2.551	1.020	1.4452	
30 minute summer	S50	9.003	S51	254.6	2.326	0.627	2.6264	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S51	19	46.360	1.635	369.0	4.2530	0.0000	SURCHARGED
30 minute summer	S52	19	45.667	1.277	816.9	1.8276	0.0000	SURCHARGED
30 minute summer	S53	19	45.184	0.884	991.7	3.5248	0.0000	SURCHARGED
30 minute summer	S54	20	46.280	1.330	60.1	3.2478	0.0000	FLOOD RISK
30 minute summer	S55	20	46.055	1.380	50.5	1.5606	0.0000	SURCHARGED
30 minute summer	S56	20	46.008	1.468	210.3	4.8592	0.0000	SURCHARGED
30 minute summer	S57	18	43.750	2.045	191.4	2.9264	17.8045	FLOOD
30 minute summer	S58	19	43.751	2.156	1169.9	9.2883	0.0000	SURCHARGED
30 minute summer	S59	19	42.759	1.879	1220.3	4.4882	0.0000	FLOOD RISK
60 minute summer	S60	36	42.224	1.599	1133.4	3.1279	0.0000	SURCHARGED
240 minute winter	S61	232	42.048	1.448	329.2	0.0000	0.0000	SURCHARGED
240 minute winter	S62	236	42.047	1.647	491.1	2211.6760	0.0000	FLOOD RISK
240 minute winter	S63	236	42.046	1.676	66.3	9.5957	0.0000	FLOOD RISK
240 minute winter	S64	236	40.526	0.171	66.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S51	9.004	S52	353.1	2.229	1.737	7.3618	
30 minute summer	S52	8.006	S53	817.0	2.913	1.732	5.3758	
30 minute summer	S53	8.007	S58	992.6	3.947	0.651	15.2049	
30 minute summer	S54	10.000	S55	50.5	1.426	0.963	0.7821	
30 minute summer	S55	10.001	S56	58.1	0.991	0.521	0.9413	
30 minute summer	S56	10.002	S57	191.4	3.085	0.929	5.2260	
30 minute winter	S57	10.003	S58	190.1	0.744	1.118	15.6855	
30 minute summer	S58	8.008	S59	1137.6	3.187	1.029	18.3737	
30 minute summer	S59	8.009	S60	1223.9	3.429	1.119	6.6969	
30 minute summer	S60	8.010	S61	1274.7	3.571	3.382	5.4468	
30 minute summer	S61	8.011	S62	1270.4	3.605	1.933	14.4772	
240 minute winter	S62	1.017	S63	66.3	0.327	0.152	4.8877	
240 minute winter	S63	1.018	S64	66.3	1.220	0.439	0.1426	3705.1

Appendix I

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Residential roofing				
Pollution Hazard Level	Very low				
Pollution Hazard Indices					
TSS	0.2				
Metals	0.2				
Hydrocarbons	0.05				
SuDS components proposed					
Component 1	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.5	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.5				
Hydrocarbons	0.6				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Individual driveway				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.95	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.85				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Low traffic roads (e.g. residential roads and general access roads, < 300 traffic movements/day)				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed					
Component 1	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.5	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.5				
Hydrocarbons	0.6				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways)				
Pollution Hazard Level	Medium				
Pollution Hazard Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
SuDS components proposed					
Component 1	Bioretention system (where the system is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	>0.95				
Metals	>0.95				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	>0.95	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	>0.95				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways)				
Pollution Hazard Level	Medium				
Pollution Hazard Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.95	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.85				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways)				
Pollution Hazard Level	Medium				
Pollution Hazard Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
SuDS components proposed					
Component 1	Swale	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.75				
Metals	0.85				
Hydrocarbons	0.9				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.75	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.85				
Hydrocarbons	0.9				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

Appendix J

OPERATION AND MAINTENANCE REQUIREMENTS BASED ON C753 THE SuDS MANUAL 2015

Inlets, Outlets, Controls and Inspection Chambers	
Regular Maintenance	**Typical Frequency**
Inlets, outlets and surface control structures Inspect surface structures, removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
Inspection chambers and below-ground control chambers Remove cover and inspect, ensuring that water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn.	Annually
Occasional Maintenance	
Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage.	As necessary
Remedial Work	**Frequency**
Repair physical damage if necessary	As Required

Operation and Maintenance Requirements for Pervious Pavements		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduce frequency as required, based on site-specific observations of clogging or manufacture's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is the most likely to collect the most sediment.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than a spray.	As required – once per a year on less frequently used pavements.
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing materials.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection.	Monthly for three months after instillation.

Operation and Maintenance Requirements for Pervious Pavements		
Maintenance Schedule	**Required Action**	**Typical Frequency**
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48 hours after large storms in first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor inspection chambers.	Annually.

Operation and Maintenance Requirements for Attenuation Storage Tanks		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Inspections	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risk to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface or filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays.	Annually, or as required
Remedial Action	Repair/rehabilitate inlets, outlets, overflows and vents.	As required
Monitoring	Inspect/ check all inlets, outlets vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required

Operation and Maintenance Requirements for Filter Drains		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices.	Monthly or as required.
	Inspect filter drain surface, inlet/outlet pipework and control system for blockages, clogging, standing water and structural damage.	Monthly.
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies.	Six monthly.
	Remove sediment from pre-treatment devices.	Six monthly, or as required.
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (e.g. NJUG, 2007 or BS 3998:2010).	As required.
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium.	Five yearly, or as required.
	Clear perforated pipework of blockages.	As required.

Operation and Maintenance Requirements for Bio-Retention Features		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time and assess water levels in underdrain (if appropriate) to determine any maintenance need.	Quarterly
	Check performance of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species etc. and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter (including leaf litter), surface debris and weeds.	Quarterly or more frequently as required for aesthetic reasons.
	Replace any plants, to maintain planting density.	As required.
	Remove sediment, litter and debris build-up from around inlets or from forebays.	Quarterly to bi-annually.
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if necessary.	As required.
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As required.
Remedial Actions	Remove and replace filter medium and vegetation above.	As required, but expectancy of >20 years.

Operation and Maintenance Requirements for Swales		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter (including leaf litter) and debris.	Monthly or as required.
	Cut grass – to retain grass height within specified design range.	Monthly (during growing season) or as required.
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours.	Monthly or as required.
	Inspect vegetation coverage.	Monthly for six months, quarterly for two years, then half yearly.
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.	Half yearly.
Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area.
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break-up silt deposits and prevent compaction of the soil surface.	As required.
	Remove build-up of sediment on upstream gravel trench, flow spreader or top of soil surface.	As required.

Operation and Maintenance Requirements for Swales		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Remedial Actions	Remove and dispose of oil and fuel residues using safe standard practices.	As required.

Operation and Maintenance Requirements for Detention Basin		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter (including leaf litter) and debris.	Monthly or as required.
	Cut grass – for spillways and access routes.	Monthly (during growing season) or as required.
	Cut grass – meadow grass in and around basin.	Half yearly (spring – before nesting season, and autumn).
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect bankside, structures, pipework etc. for evidence of physical damage.	Monthly.
	Inspect inlets and facility surface for silt accumulation and establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required.
	Check any penstocks and other mechanical devices.	Annually.
	Tidy all dead growth before start of growing season.	Annually.
	Remove sediment from inlets, outlets and forebay.	Annually (or as required).
	Manage wetland plants in outlet pool – where provided.	Annually.
Occasional Maintenance	Reseed areas of poor vegetation growth.	As required.
	Prune and trim any trees, remove cuttings.	Every two years, or as required.
	Remove sediment from inlets, outlets, forebay and main basin when required.	Every five years, or as required.
Remedial Actions	Repair erosion or other damage by reseeding or re-turfing.	As required.
	Realignment of rip-rap.	As required.

Operation and Maintenance Requirements for Detention Basin		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Remedial Actions	Repair/rehabilitation of inlets, outlets and overflows.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.