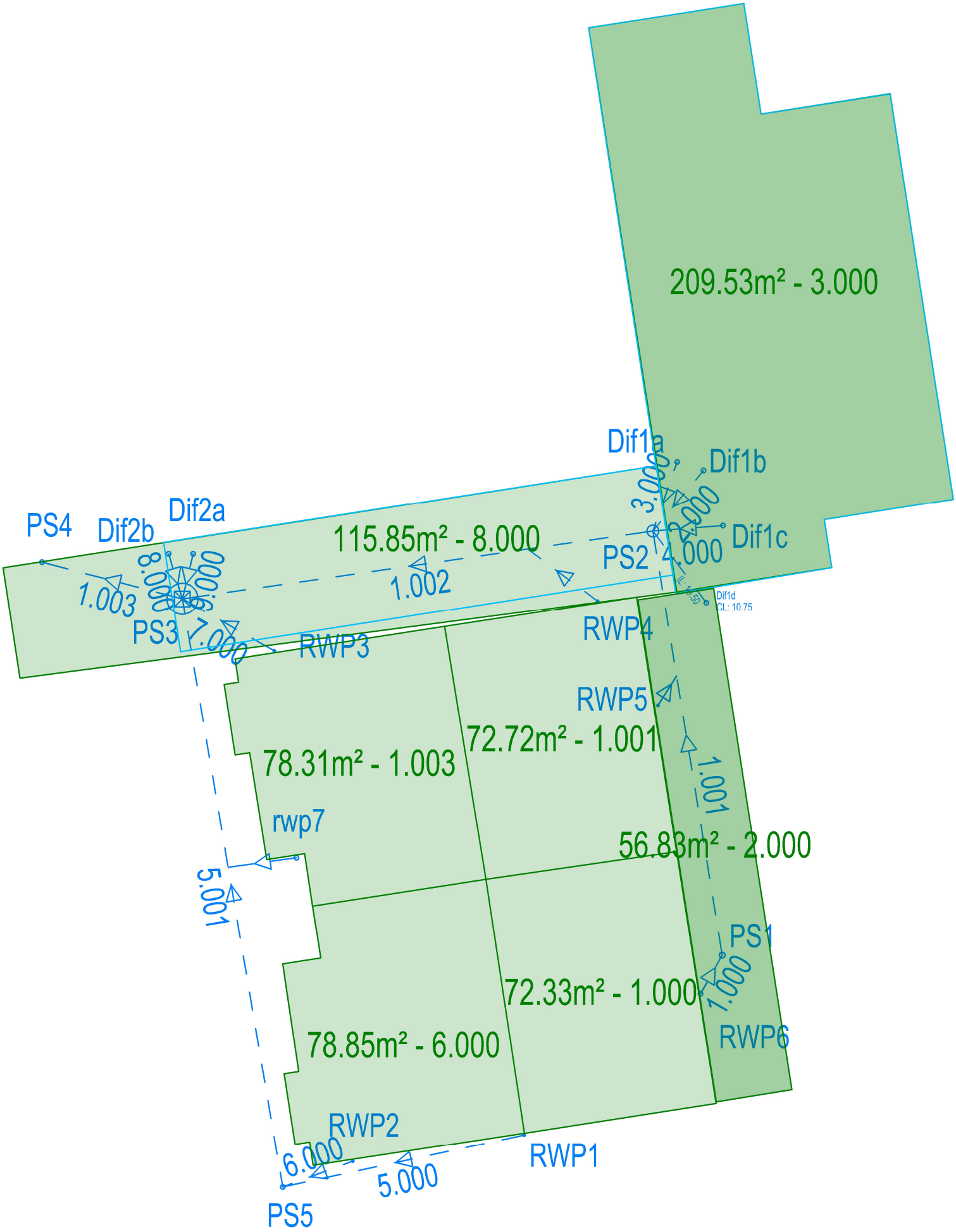
Surface Water Drainage Design Summary and Calculations		
Project Name:	**Victoria Road, Worthing**	
Project Number:	**D2269**	
Client:	**Sunninghill Construction**	
Prepared by and Date:	**LF**	**Aug 2024**

BP CIVILS

Site Address:	Victoria Road, Worthing
Local Authority:	Worthing Borough
Lead Local Flood Authority:	West Sussex County Council
Site Area:	1221m^2
Geology:	Clay
Green Field Runoff rate (Qbar):	0.22l/s but site is brownfield with existing run off of 12.23l/s
Ground Water Depth:	3.25m below ground level
Soil Infiltration rate:	N/A
Proposed method of disposal and reason:	To existing surface water sewer to mimic existing
Design storms considered:	1:1, 1:2, 1:10, 1:30 1:100 (FEH22, Cv = 1)
Climate change:	45%
Proposed Catchment Area:	627.59
Proposed discharge Rate:	3l/s
Flow control method	Hydrobrake
Volume of Storage Provided and method:	39.34m^3 Tanked permeable paving sub base
Offsite works:	None

BP Civils is a trading name of RGP Design Ltd | Registered in England No: 09674169 | VAT Registration No. 219 6736 80 | Unit 2, West Barn, Norton Lane, Chichester, PO20 3AF


209.53m² - 3.000
Dif1a
Dif1b
Dif1c
Dif1d
CL: 10.75
PS4
Dif2b
Dif2a
115.85m² - 8.000
PS2
PS3
RWP3
RWP4
RWP5
72.72m² - 1.001
78.31m² - 1.003
rwp7
56.83m² - 2.000
PS1
72.33m² - 1.000
78.85m² - 6.000
RWP6
RWP2
RWP1
PS5
3.000
4.000
8.000
5.000
1.003
1.002
7.000
1.001
5.001
1.000
6.000
5.000

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
RWP6	0.007	0.180	Type E	10.799	10.249	0.450	514481.160	102938.962
PS1	0.007	0.225	Type E	10.780	10.230	0.450	514481.992	102940.433
Dif1d	0.006	0.180	Type E	10.750	10.500	0.150	514481.382	102953.930
Dif1b	0.000	0.180	Type E	10.198	9.748	0.350	514481.276	102958.989
Dif1a	0.021	0.180	Type E	10.199	9.749	0.350	514480.265	102959.312
Dif1c	0.000	0.180	Type E	10.198	9.748	0.350	514482.022	102956.870
PS2	0.000	0.450	Type E	10.214	9.548	0.516	514479.337	102956.665
RWP1	0.000	0.100	Unknown	10.550	10.000	0.450	514474.419	102933.558
RWP2	0.008	0.100	Unknown	10.550	10.000	0.450	514467.867	102932.548
PS5	0.000	0.180	Type E	10.500	9.550	0.850	514465.185	102931.567
YG1	0.000	0.180	Type E	10.152	9.352	0.700	514457.117	102955.650
RWP3	0.000	0.100	Unknown	10.200	9.650	0.450	514464.858	102952.084
Dif2b	0.012	0.180	Type E	10.227	9.584	0.543	514460.822	102955.796
Dif2a	0.000	0.180	Type E	10.228	9.638	0.490	514461.763	102955.799
PS3	0.008	1.200	Type E	10.256	9.040	1.066	514461.350	102954.073
PS4	0.000	0.180	Type E	10.145	8.930	1.065	514455.981	102955.475

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)
1.000	RWP6	10.249	PS1	10.230	Circ	0.1mØ	1.690	89.0	0.600	0.450
1.001	PS1	10.230	PS2	9.598	Circ	0.1mØ	16.447	26.0	0.600	0.450
2.000	Dif1d	10.500	PS2	9.598	Circ	0.1mØ	3.415	3.8	0.600	0.150
3.000	Dif1b	9.748	PS2	9.598	Circ	0.1mØ	3.027	20.1	0.600	0.350
4.000	Dif1a	9.749	PS2	9.598	Circ	0.1mØ	2.805	18.6	0.600	0.350
5.000	Dif1c	9.748	PS2	9.598	Circ	0.1mØ	2.693	18.0	0.600	0.350
1.002	PS2	9.548	PS3	9.040	Circ	0.15mØ	18.173	35.8	0.600	0.516
6.000	RWP1	10.000	PS5	9.550	Circ	0.1mØ	9.446	21.0	0.600	0.450
7.000	RWP2	10.000	PS5	9.550	Circ	0.1mØ	2.856	6.3	0.600	0.450
6.001	PS5	9.550	PS3	9.090	Circ	0.1mØ	22.831	49.6	0.600	0.850
8.000	YG1	9.352	PS3	9.090	Circ	0.1mØ	4.517	17.2	0.600	0.700
9.000	RWP3	9.650	PS3	9.090	Circ	0.1mØ	4.033	7.2	0.600	0.450
10.000	Dif2b	9.584	PS3	9.090	Circ	0.1mØ	1.802	3.7	0.600	0.543
11.000	Dif2a	9.638	PS3	9.090	Circ	0.1mØ	1.775	3.2	0.600	0.490
1.003	PS3	9.040	PS4	8.930	Circ	0.15mØ	5.549	50.4	0.600	1.066

Outfall Details

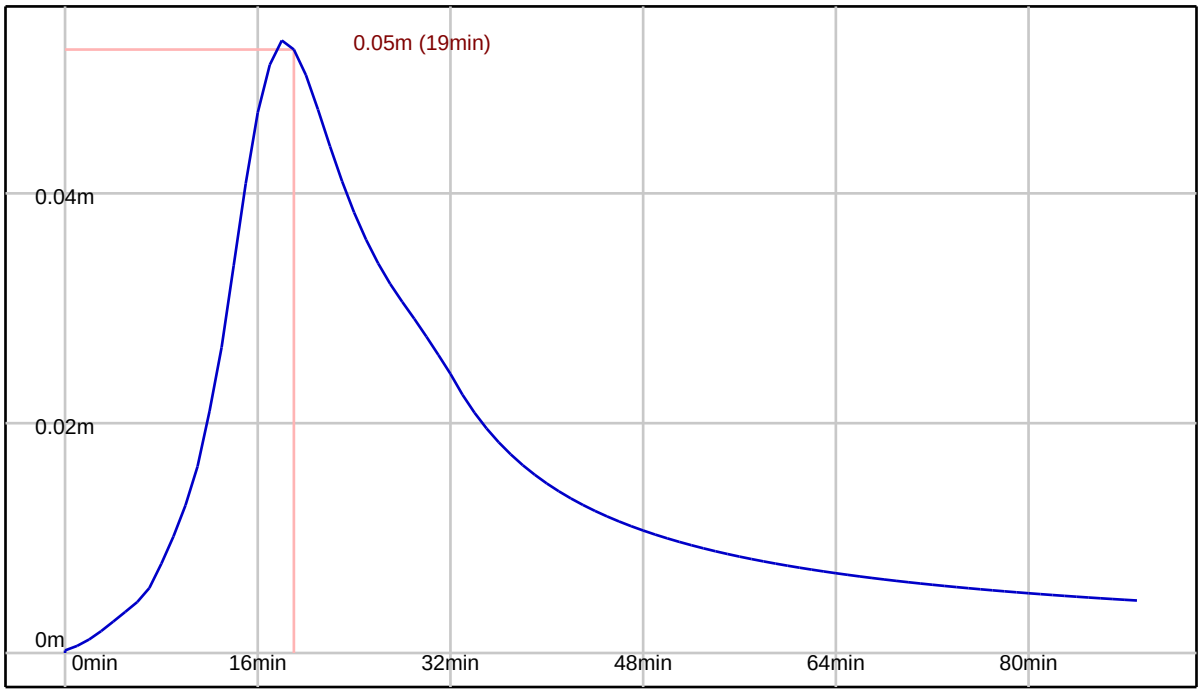
Outfall Manhole PS4 : Free Discharge

Flow Control Details

Tank Structure at Manhole PS1

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
10.230	0.150	95.00	57.093	54.238	8.136	0.00000000	0.00000000	2.00

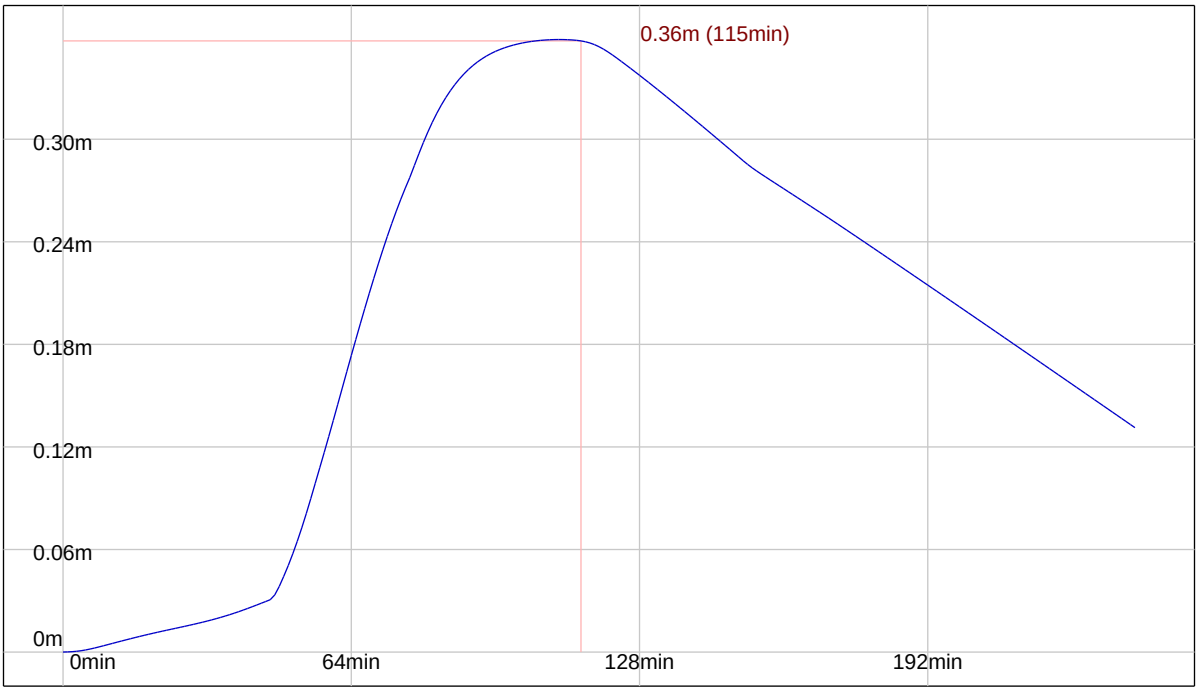
Tank at PS1 (100Yr+45% 30Min Summer)



Tank Structure at Manhole Dif1a

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.749	0.450	30.00	210.151	63.045	28.370	0.00000000	0.00000000	2.00

Tank at Dif1a (100Yr+45% 120Min Winter)

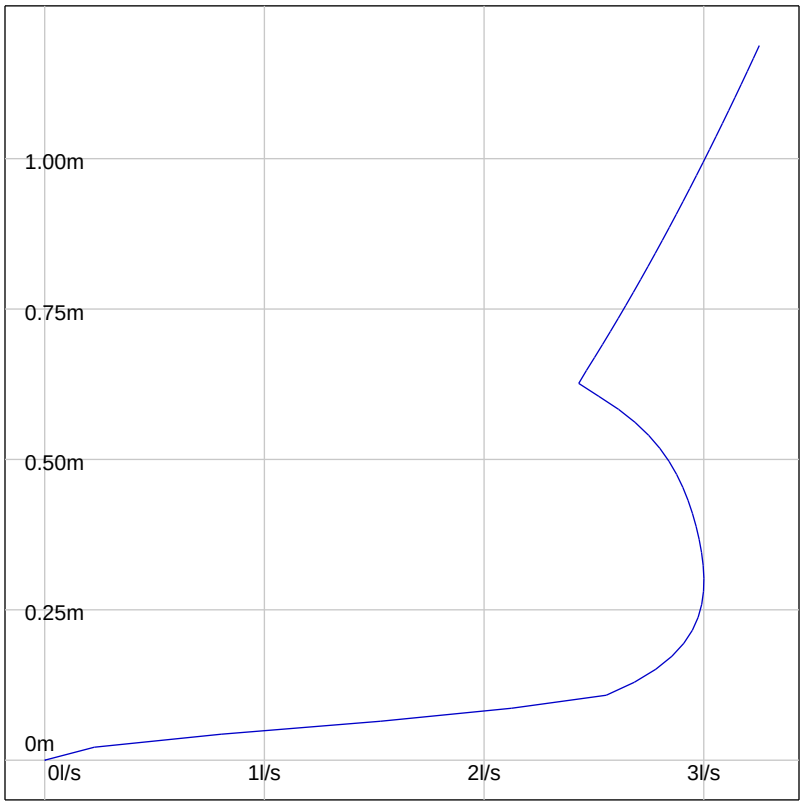


Controls within Manhole PS3

Hydro-Brake® Optimum Control at Manhole PS3

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0082-3000-1000-3000	1.000	3.000	0.000	0.298	3.001	0.624	2.424

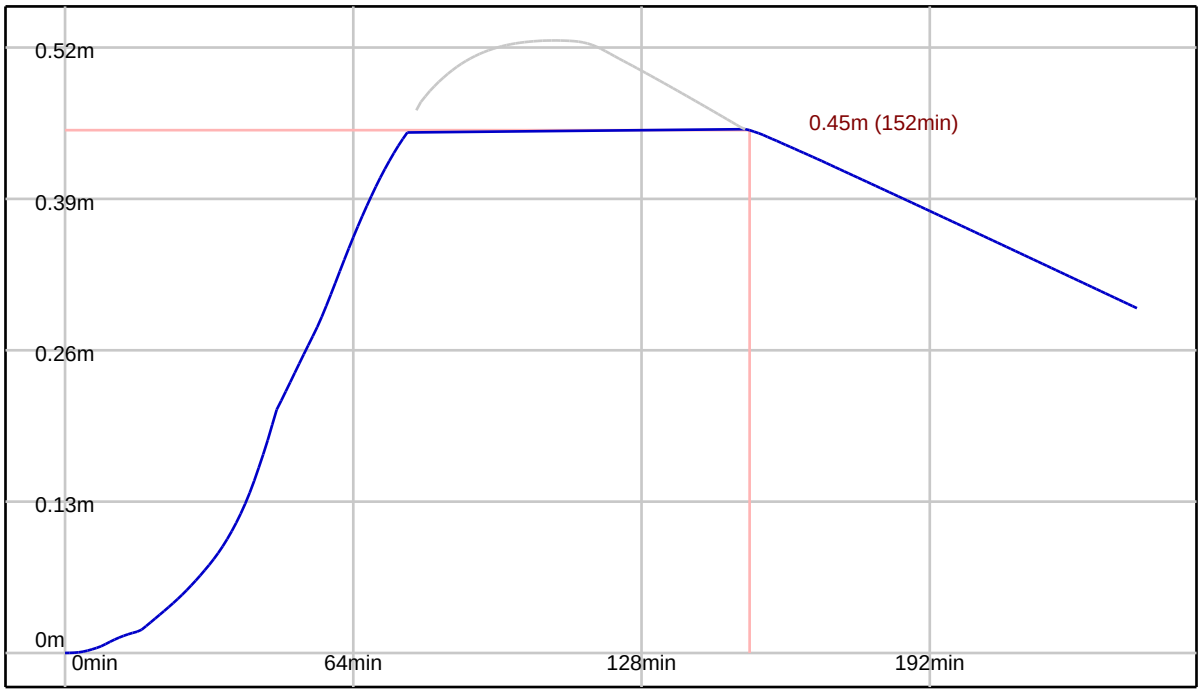
Hydro-Brake® Optimum Control at PS3



Tank Structure at Manhole PS3

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.040	0.450	30.00	80.733	24.220	10.899	0.00000000	0.00000000	2.00

Tank at PS3 (100Yr+45% 120Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_514452_102937_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (1, +0%), (2, +0%), (10, +0%), (30, +0%), (100, +0%), (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
1Yr 15Min Winter	13.971	0.00	24.84	30Yr 15Min Summer	85.842	0.00	5.34
1Yr 15Min Summer	13.971	0.00	27.46	30Yr 15Min Winter	85.842	0.00	5.20
1Yr 30Min Winter	9.196	0.00	18.73	30Yr 30Min Summer	57.163	0.00	5.44
1Yr 30Min Summer	9.196	0.00	19.41	30Yr 30Min Winter	57.163	0.00	5.77
1Yr 60Min Winter	5.800	0.00	14.91	30Yr 60Min Summer	36.377	0.00	5.50
1Yr 60Min Summer	5.800	0.00	15.39	30Yr 60Min Winter	36.377	0.00	5.80
1Yr 120Min Summer	4.916	0.00	8.68	30Yr 120Min Summer	22.396	0.00	2.05
1Yr 120Min Winter	4.916	0.00	8.41	30Yr 120Min Winter	22.396	0.00	1.99
1Yr 180Min Winter	4.255	0.00	6.30	30Yr 180Min Summer	16.602	0.00	1.71
1Yr 180Min Summer	4.255	0.00	6.51	30Yr 180Min Winter	16.602	0.00	1.66
1Yr 240Min Summer	3.533	0.00	5.80	30Yr 240Min Summer	13.310	0.00	1.55
1Yr 240Min Winter	3.533	0.00	5.62	30Yr 240Min Winter	13.310	0.00	1.50
1Yr 360Min Summer	2.764	0.00	4.90	30Yr 360Min Summer	9.640	0.00	1.41
1Yr 360Min Winter	2.764	0.00	4.75	30Yr 360Min Winter	9.640	0.00	1.36
1Yr 480Min Summer	2.308	0.00	4.38	30Yr 480Min Summer	7.631	0.00	1.33
1Yr 480Min Winter	2.308	0.00	4.25	30Yr 480Min Winter	7.631	0.00	1.28
1Yr 600Min Summer	1.973	0.00	4.10	30Yr 600Min Summer	6.344	0.00	1.28
1Yr 600Min Winter	1.973	0.00	3.98	30Yr 600Min Winter	6.344	0.00	1.24
1Yr 720Min Summer	1.721	0.00	3.92	30Yr 720Min Summer	5.443	0.00	1.24
1Yr 720Min Winter	1.721	0.00	3.81	30Yr 720Min Winter	5.443	0.00	1.20
1Yr 960Min Summer	1.392	0.00	3.63	30Yr 960Min Summer	4.271	0.00	1.18
1Yr 960Min Winter	1.392	0.00	3.53	30Yr 960Min Winter	4.271	0.00	1.15
1Yr 1440Min Winter	1.043	0.00	3.14	30Yr 1440Min Summer	3.035	0.00	1.11
1Yr 1440Min Summer	1.043	0.00	3.23	30Yr 1440Min Winter	3.035	0.00	1.08
1Yr 2160Min Summer	0.791	0.00	2.84	30Yr 2160Min Summer	2.177	0.00	1.03
1Yr 2160Min Winter	0.791	0.00	2.76	30Yr 2160Min Winter	2.177	0.00	1.00
1Yr 2880Min Summer	0.657	0.00	2.57	30Yr 2880Min Summer	1.734	0.00	0.97
1Yr 2880Min Winter	0.657	0.00	2.49	30Yr 2880Min Winter	1.734	0.00	0.94
1Yr 4320Min Summer	0.519	0.00	2.13	30Yr 4320Min Summer	1.276	0.00	0.88
1Yr 4320Min Winter	0.519	0.00	2.06	30Yr 4320Min Winter	1.276	0.00	0.85
1Yr 5760Min Summer	0.449	0.00	1.87	30Yr 5760Min Summer	1.040	0.00	0.80
1Yr 5760Min Winter	0.449	0.00	1.80	30Yr 5760Min Winter	1.040	0.00	0.78
1Yr 7200Min Summer	0.405	0.00	1.66	30Yr 7200Min Summer	0.896	0.00	0.75
1Yr 7200Min Winter	0.405	0.00	1.59	30Yr 7200Min Winter	0.896	0.00	0.72
1Yr 8640Min Summer	0.375	0.00	1.49	30Yr 8640Min Summer	0.799	0.00	0.70
1Yr 8640Min Winter	0.375	0.00	1.40	30Yr 8640Min Winter	0.799	0.00	0.68
1Yr 10080Min Summer	0.353	0.00	1.35	30Yr 10080Min Summer	0.729	0.00	0.66
1Yr 10080Min Winter	0.353	0.00	1.24	30Yr 10080Min Winter	0.729	0.00	0.63
2Yr 15Min Summer	32.400	0.00	12.57	100Yr 15Min Summer	108.023	0.00	5.45
2Yr 15Min Winter	32.400	0.00	11.30	100Yr 15Min Winter	108.023	0.00	6.36
2Yr 30Min Summer	21.200	0.00	8.79	100Yr 30Min Summer	72.473	0.00	7.15
2Yr 30Min Winter	21.200	0.00	8.49	100Yr 30Min Winter	72.473	0.00	7.39
2Yr 60Min Summer	13.368	0.00	6.90	100Yr 60Min Summer	46.605	0.00	6.57
2Yr 60Min Winter	13.368	0.00	6.68	100Yr 60Min Winter	46.605	0.00	6.61
2Yr 120Min Summer	9.437	0.00	4.57	100Yr 120Min Summer	28.149	0.00	1.85
2Yr 120Min Winter	9.437	0.00	4.42	100Yr 120Min Winter	28.149	0.00	1.91
2Yr 180Min Summer	7.511	0.00	3.70	100Yr 180Min Summer	20.680	0.00	1.40
2Yr 180Min Winter	7.511	0.00	3.58	100Yr 180Min Winter	20.680	0.00	1.37
2Yr 240Min Summer	6.118	0.00	3.36	100Yr 240Min Summer	16.578	0.00	1.25
2Yr 240Min Winter	6.118	0.00	3.25	100Yr 240Min Winter	16.578	0.00	1.22
2Yr 360Min Summer	4.585	0.00	2.96	100Yr 360Min Summer	12.017	0.00	1.13
2Yr 360Min Winter	4.585	0.00	2.86	100Yr 360Min Winter	12.017	0.00	1.09
2Yr 480Min Summer	3.718	0.00	2.72	100Yr 480Min Summer	9.528	0.00	1.06
2Yr 480Min Winter	3.718	0.00	2.64	100Yr 480Min Winter	9.528	0.00	1.03
2Yr 600Min Summer	3.131	0.00	2.58	100Yr 600Min Summer	7.939	0.00	1.02

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr 600Min Winter	3.131	0.00	2.51	100Yr 600Min Winter	7.939	0.00	0.99
2Yr 720Min Summer	2.708	0.00	2.49	100Yr 720Min Summer	6.824	0.00	0.99
2Yr 720Min Winter	2.708	0.00	2.41	100Yr 720Min Winter	6.824	0.00	0.96
2Yr 960Min Summer	2.160	0.00	2.34	100Yr 960Min Summer	5.359	0.00	0.94
2Yr 960Min Winter	2.160	0.00	2.27	100Yr 960Min Winter	5.359	0.00	0.92
2Yr 1440Min Summer	1.575	0.00	2.14	100Yr 1440Min Summer	3.805	0.00	0.89
2Yr 1440Min Winter	1.575	0.00	2.08	100Yr 1440Min Winter	3.805	0.00	0.86
2Yr 2160Min Summer	1.162	0.00	1.94	100Yr 2160Min Summer	2.717	0.00	0.83
2Yr 2160Min Winter	1.162	0.00	1.88	100Yr 2160Min Winter	2.717	0.00	0.80
2Yr 2880Min Summer	0.947	0.00	1.78	100Yr 2880Min Summer	2.148	0.00	0.79
2Yr 2880Min Winter	0.947	0.00	1.72	100Yr 2880Min Winter	2.148	0.00	0.76
2Yr 4320Min Summer	0.726	0.00	1.54	100Yr 4320Min Summer	1.560	0.00	0.71
2Yr 4320Min Winter	0.726	0.00	1.49	100Yr 4320Min Winter	1.560	0.00	0.69
2Yr 5760Min Summer	0.612	0.00	1.37	100Yr 5760Min Summer	1.257	0.00	0.67
2Yr 5760Min Winter	0.612	0.00	1.32	100Yr 5760Min Winter	1.257	0.00	0.65
2Yr 7200Min Summer	0.543	0.00	1.24	100Yr 7200Min Summer	1.072	0.00	0.62
2Yr 7200Min Winter	0.543	0.00	1.19	100Yr 7200Min Winter	1.072	0.00	0.60
2Yr 8640Min Summer	0.495	0.00	1.13	100Yr 8640Min Summer	0.948	0.00	0.59
2Yr 8640Min Winter	0.495	0.00	1.08	100Yr 8640Min Winter	0.948	0.00	0.57
2Yr 10080Min Winter	0.461	0.00	0.98	100Yr 10080Min Summer	0.858	0.00	0.56
2Yr 10080Min Summer	0.461	0.00	1.04	100Yr 10080Min Winter	0.858	0.00	0.54
10Yr 15Min Summer	65.597	0.00	6.54	100Yr+45% 15Min Summer	156.633	0.00	7.92
10Yr 15Min Winter	65.597	0.00	5.96	100Yr+45% 15Min Winter	156.633	0.00	7.96
10Yr 30Min Summer	43.209	0.00	4.78	100Yr+45% 30Min Summer	105.086	0.00	7.87
10Yr 30Min Winter	43.209	0.00	4.70	100Yr+45% 30Min Winter	105.086	0.00	7.94
10Yr 60Min Summer	27.305	0.00	3.86	100Yr+45% 60Min Summer	67.578	0.00	7.51
10Yr 60Min Winter	27.305	0.00	3.83	100Yr+45% 60Min Winter	67.578	0.00	7.58
10Yr 120Min Summer	17.360	0.00	2.55	100Yr+45% 120Min Summer	40.816	0.00	4.44
10Yr 120Min Winter	17.360	0.00	2.47	100Yr+45% 120Min Winter	40.816	0.00	4.64
10Yr 180Min Summer	13.096	0.00	2.14	100Yr+45% 180Min Summer	29.985	0.00	1.41
10Yr 180Min Winter	13.096	0.00	2.08	100Yr+45% 180Min Winter	29.985	0.00	1.84
10Yr 240Min Summer	10.518	0.00	1.96	100Yr+45% 240Min Summer	24.038	0.00	0.91
10Yr 240Min Winter	10.518	0.00	1.90	100Yr+45% 240Min Winter	24.038	0.00	0.91
10Yr 360Min Summer	7.673	0.00	1.77	100Yr+45% 360Min Summer	17.425	0.00	0.78
10Yr 360Min Winter	7.673	0.00	1.71	100Yr+45% 360Min Winter	17.425	0.00	0.76
10Yr 480Min Summer	6.103	0.00	1.66	100Yr+45% 480Min Summer	13.816	0.00	0.73
10Yr 480Min Winter	6.103	0.00	1.61	100Yr+45% 480Min Winter	13.816	0.00	0.71
10Yr 600Min Summer	5.080	0.00	1.59	100Yr+45% 600Min Summer	11.512	0.00	0.70
10Yr 600Min Winter	5.080	0.00	1.54	100Yr+45% 600Min Winter	11.512	0.00	0.68
10Yr 720Min Summer	4.359	0.00	1.55	100Yr+45% 720Min Summer	9.895	0.00	0.68
10Yr 720Min Winter	4.359	0.00	1.50	100Yr+45% 720Min Winter	9.895	0.00	0.66
10Yr 960Min Winter	3.432	0.00	1.43	100Yr+45% 960Min Summer	7.770	0.00	0.65
10Yr 960Min Summer	3.432	0.00	1.47	100Yr+45% 960Min Winter	7.770	0.00	0.63
10Yr 1440Min Summer	2.453	0.00	1.37	100Yr+45% 1440Min Summer	5.517	0.00	0.61
10Yr 1440Min Winter	2.453	0.00	1.33	100Yr+45% 1440Min Winter	5.517	0.00	0.59
10Yr 2160Min Summer	1.771	0.00	1.27	100Yr+45% 2160Min Summer	3.939	0.00	0.57
10Yr 2160Min Winter	1.771	0.00	1.23	100Yr+45% 2160Min Winter	3.939	0.00	0.55
10Yr 2880Min Summer	1.420	0.00	1.19	100Yr+45% 2880Min Summer	3.114	0.00	0.54
10Yr 2880Min Winter	1.420	0.00	1.15	100Yr+45% 2880Min Winter	3.114	0.00	0.53
10Yr 4320Min Summer	1.059	0.00	1.05	100Yr+45% 4320Min Summer	2.262	0.00	0.50
10Yr 4320Min Winter	1.059	0.00	1.02	100Yr+45% 4320Min Winter	2.262	0.00	0.48
10Yr 5760Min Summer	0.873	0.00	0.96	100Yr+45% 5760Min Summer	1.823	0.00	0.46
10Yr 5760Min Winter	0.873	0.00	0.93	100Yr+45% 5760Min Winter	1.823	0.00	0.45
10Yr 7200Min Summer	0.759	0.00	0.88	100Yr+45% 7200Min Summer	1.555	0.00	0.43
10Yr 7200Min Winter	0.759	0.00	0.85	100Yr+45% 7200Min Winter	1.555	0.00	0.42
10Yr 8640Min Summer	0.682	0.00	0.82	100Yr+45% 8640Min Summer	1.375	0.00	0.41
10Yr 8640Min Winter	0.682	0.00	0.79	100Yr+45% 8640Min Winter	1.375	0.00	0.39
10Yr 10080Min Summer	0.626	0.00	0.77	100Yr+45% 10080Min Winter	1.245	0.00	0.37
10Yr 10080Min Winter	0.626	0.00	0.73	100Yr+45% 10080Min Summer	1.245	0.00	0.39

Simulation Results

Return Period Yrs: 1.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	180 min Summer	101	10.511	0.262	0.199		Flood Risk
PS1	180 min Summer	103	10.511	0.011	0.360		Surcharged
Dif1d	15 min Winter	8	10.508	0.008	0.421		OK
Dif1b	-	0	9.748	0.000	0.000		OK
Dif1a	180 min Summer	99	9.765	0.015	0.638		OK
Dif1c	-	0	9.748	0.000	0.000		OK
PS2	180 min Summer	110	9.658	0.110	0.970		OK
RWP1	-	0	10.000	0.000	0.000		OK
RWP2	15 min Winter	8	10.011	0.011	0.584		OK
PS5	180 min Summer	110	9.657	0.107	0.133		Surcharged
YG1	180 min Summer	108	9.657	0.305	0.000		Surcharged
RWP3	180 min Summer	111	9.657	0.007	0.000		OK
Dif2b	180 min Summer	111	9.657	0.073	0.180		OK
Dif2a	180 min Summer	110	9.657	0.019	0.003		OK
PS3	180 min Summer	110	9.657	0.077	1.465		Surcharged
PS4	180 min Summer	111	8.946	0.016	1.405		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	180 min Summer	103	RWP6	PS1	0.056	0.070	0.306	0.048	OK
1.001	180 min Summer	109	PS1	PS2	0.035	0.269	0.370	0.031	OK
2.000	180 min Summer	109	Dif1d	PS2	0.032	0.911	0.247	0.008	OK
3.000	180 min Summer	110	Dif1b	PS2	0.030	0.000	0.000	0.000	OK
4.000	180 min Summer	108	Dif1a	PS2	0.037	0.626	0.644	0.046	OK
5.000	180 min Summer	110	Dif1c	PS2	0.030	0.000	0.000	0.000	OK
1.002	180 min Summer	110	PS2	PS3	0.093	0.111	1.120	0.038	OK
6.000	180 min Winter	105	RWP1	PS5	0.050	0.000	0.000	0.000	OK
7.000	180 min Summer	100	RWP2	PS5	0.053	0.379	0.343	0.014	OK
6.001	180 min Summer	110	PS5	PS3	0.088	0.051	0.282	0.033	OK
8.000	180 min Summer	110	YG1	PS3	0.088	0.039	0.173	0.012	OK
9.000	180 min Summer	119	RWP3	PS3	0.042	0.004	0.013	0.001	OK
10.000	180 min Summer	111	Dif2b	PS3	0.075	0.332	0.458	0.014	OK
11.000	180 min Summer	128	Dif2a	PS3	0.048	0.029	0.082	0.002	OK
1.003	180 min Summer	111	PS3	PS4	0.016	1.438	1.405	0.056	OK

Return Period Yrs: 2.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	30 min Summer	16	10.522	0.273	1.157		Flood Risk
PS1	120 min Summer	68	10.517	0.017	0.858		Surcharged
Dif1d	15 min Winter	8	10.512	0.012	0.977		OK
Dif1b	-	0	9.748	0.000	0.000		OK
Dif1a	120 min Summer	66	9.771	0.021	1.438		OK
Dif1c	-	0	9.748	0.000	0.000		OK
PS2	180 min Summer	109	9.718	0.170	1.816		Surcharged
RWP1	-	0	10.000	0.000	0.000		OK
RWP2	15 min Winter	8	10.016	0.016	1.356		OK
PS5	180 min Summer	109	9.717	0.167	0.248		Surcharged
YG1	180 min Summer	110	9.717	0.365	0.000		Surcharged
RWP3	180 min Summer	110	9.717	0.067	0.000		OK
Dif2b	180 min Summer	110	9.717	0.133	0.338		Surcharged
Dif2a	180 min Summer	110	9.717	0.079	0.000		OK
PS3	180 min Summer	110	9.717	0.137	2.573		Surcharged
PS4	180 min Summer	110	8.951	0.021	2.602		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	120 min Summer	68	RWP6	PS1	0.058	0.143	0.663	0.104	OK
1.001	120 min Summer	68	PS1	PS2	0.058	0.281	0.878	0.074	OK
2.000	180 min Summer	96	Dif1d	PS2	0.054	0.829	0.436	0.014	OK
3.000	120 min Summer	68	Dif1b	PS2	0.050	0.000	0.000	0.000	OK
4.000	120 min Summer	68	Dif1a	PS2	0.061	0.644	1.413	0.100	OK
5.000	120 min Summer	68	Dif1c	PS2	0.050	0.000	0.000	0.000	OK
1.002	180 min Summer	110	PS2	PS3	0.143	0.147	2.363	0.079	OK
6.000	15 min Winter	14	RWP1	PS5	0.050	0.000	0.000	0.000	OK
7.000	60 min Summer	32	RWP2	PS5	0.057	0.743	0.952	0.039	OK
6.001	120 min Summer	64	PS5	PS3	0.100	0.085	0.632	0.073	Surcharged
8.000	120 min Summer	64	YG1	PS3	0.100	0.058	0.261	0.018	Surcharged
9.000	180 min Summer	125	RWP3	PS3	0.083	0.012	0.039	0.002	OK
10.000	120 min Summer	65	Dif2b	PS3	0.100	0.457	0.977	0.031	Surcharged
11.000	180 min Summer	147	Dif2a	PS3	0.089	0.017	0.045	0.001	OK
1.003	180 min Summer	110	PS3	PS4	0.021	1.729	2.602	0.104	OK

Return Period Yrs: 10.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	30 min Summer	17	10.547	0.298	2.149		Flood Risk
PS1	60 min Summer	35	10.527	0.027	2.265		Surcharged
Dif1d	15 min Winter	8	10.517	0.017	1.979		OK
Dif1b	120 min Winter	88	9.815	0.067	0.000		OK
Dif1a	120 min Winter	88	9.815	0.065	0.784		OK
Dif1c	120 min Winter	89	9.815	0.067	0.012		OK
PS2	120 min Winter	88	9.815	0.267	1.894		Surcharged
RWP1	-	0	10.000	0.000	0.000		OK
RWP2	15 min Winter	8	10.023	0.023	2.746		OK
PS5	120 min Winter	87	9.814	0.264	0.319		Surcharged
YG1	120 min Winter	88	9.813	0.461	0.000		Surcharged
RWP3	120 min Winter	88	9.813	0.163	0.000		Surcharged
Dif2b	120 min Winter	88	9.813	0.230	0.434		Surcharged
Dif2a	120 min Winter	88	9.813	0.175	0.000		Surcharged
PS3	120 min Winter	88	9.813	0.233	2.928		Surcharged
PS4	120 min Winter	88	8.952	0.022	2.939		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Summer	35	RWP6	PS1	0.064	0.348	1.769	0.277	OK
1.001	60 min Summer	35	PS1	PS2	0.064	0.439	2.314	0.194	OK
2.000	30 min Summer	16	Dif1d	PS2	0.058	1.343	1.853	0.059	OK
3.000	120 min Winter	119	Dif1b	PS2	0.084	0.222	1.342	0.099	OK
4.000	120 min Winter	114	Dif1a	PS2	0.083	0.665	3.314	0.234	OK
5.000	120 min Winter	119	Dif1c	PS2	0.084	0.229	1.392	0.097	OK
1.002	30 min Summer	19	PS2	PS3	0.150	0.370	6.540	0.219	Surcharged
6.000	15 min Summer	7	RWP1	PS5	0.050	0.000	0.000	0.000	OK
7.000	15 min Winter	8	RWP2	PS5	0.061	0.837	2.732	0.113	OK
6.001	15 min Winter	10	PS5	PS3	0.100	0.358	2.491	0.290	Surcharged
8.000	15 min Winter	10	YG1	PS3	0.100	0.056	0.432	0.029	Surcharged
9.000	180 min Winter	161	RWP3	PS3	0.100	0.023	0.181	0.008	Surcharged
10.000	15 min Winter	10	Dif2b	PS3	0.100	0.957	4.518	0.141	Surcharged
11.000	240 min Winter	181	Dif2a	PS3	0.100	0.045	0.282	0.008	Surcharged
1.003	120 min Winter	88	PS3	PS4	0.022	1.792	2.939	0.117	OK

Return Period Yrs: 30.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	30 min Summer	18	10.553	0.304	2.279		Flood Risk
PS1	30 min Summer	19	10.534	0.034	3.515		Surcharged
Dif1d	15 min Winter	8	10.519	0.019	2.590		OK
Dif1b	120 min Winter	92	9.868	0.120	0.015		Surcharged
Dif1a	120 min Winter	92	9.868	0.118	0.796		Surcharged
Dif1c	120 min Winter	91	9.868	0.120	0.000		Surcharged
PS2	120 min Winter	92	9.868	0.320	1.917		Surcharged
RWP1	-	0	10.000	0.000	0.000		OK
RWP2	15 min Winter	8	10.026	0.026	3.593		OK
PS5	120 min Winter	91	9.866	0.316	0.321		Surcharged
YG1	120 min Winter	91	9.866	0.514	0.000		Flood Risk
RWP3	120 min Winter	91	9.866	0.216	0.001		Surcharged
Dif2b	120 min Winter	91	9.866	0.282	0.466		Surcharged
Dif2a	120 min Winter	91	9.866	0.228	0.001		Surcharged
PS3	120 min Winter	91	9.866	0.286	3.008		Surcharged
PS4	120 min Winter	91	8.952	0.022	2.992		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	30 min Summer	19	RWP6	PS1	0.067	0.949	4.814	0.753	OK
1.001	30 min Summer	19	PS1	PS2	0.067	0.630	3.519	0.295	OK
2.000	30 min Summer	16	Dif1d	PS2	0.059	1.376	2.451	0.078	OK
3.000	180 min Winter	194	Dif1b	PS2	0.100	0.279	1.600	0.118	Surcharged
4.000	60 min Winter	43	Dif1a	PS2	0.100	0.618	3.405	0.241	Surcharged
5.000	180 min Winter	194	Dif1c	PS2	0.100	0.285	1.641	0.114	Surcharged
1.002	30 min Summer	17	PS2	PS3	0.150	0.435	7.667	0.257	Surcharged
6.000	15 min Summer	6	RWP1	PS5	0.050	0.000	0.000	0.000	OK
7.000	15 min Winter	8	RWP2	PS5	0.063	1.173	3.577	0.147	OK
6.001	15 min Winter	9	PS5	PS3	0.100	0.415	3.106	0.361	Surcharged
8.000	30 min Summer	15	YG1	PS3	0.100	0.255	1.367	0.093	Surcharged
9.000	480 min Summer	315	RWP3	PS3	0.100	0.030	0.233	0.010	Surcharged
10.000	15 min Winter	9	Dif2b	PS3	0.100	0.973	5.527	0.173	Surcharged
11.000	360 min Winter	269	Dif2a	PS3	0.100	0.034	0.265	0.008	Surcharged
1.003	120 min Winter	91	PS3	PS4	0.022	1.801	2.992	0.119	OK

Return Period Yrs: 100.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	30 min Summer	18	10.562	0.313	2.889		Flood Risk
PS1	30 min Summer	19	10.540	0.040	4.390		Surcharged
Dif1d	15 min Winter	8	10.522	0.022	3.258		OK
Dif1b	120 min Winter	96	9.933	0.185	0.000		Flood Risk
Dif1a	120 min Winter	97	9.934	0.184	0.786		Surcharged
Dif1c	120 min Winter	97	9.933	0.185	0.014		Flood Risk
PS2	120 min Winter	96	9.933	0.385	1.913		Flood Risk
RWP1	-	0	10.000	0.000	0.000		OK
RWP2	15 min Winter	8	10.029	0.029	4.521		OK
PS5	120 min Winter	95	9.932	0.382	0.327		Surcharged
YG1	120 min Winter	96	9.931	0.579	0.000		Flood Risk
RWP3	120 min Winter	96	9.931	0.281	0.000		Flood Risk
Dif2b	120 min Winter	96	9.931	0.348	0.454		Flood Risk
Dif2a	120 min Winter	96	9.931	0.293	0.000		Flood Risk
PS3	120 min Winter	96	9.931	0.351	2.987		Surcharged
PS4	180 min Winter	157	8.952	0.022	3.001		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	30 min Summer	19	RWP6	PS1	0.070	0.846	4.753	0.743	OK
1.001	30 min Summer	19	PS1	PS2	0.070	0.830	4.885	0.410	OK
2.000	15 min Winter	8	Dif1d	PS2	0.061	1.711	3.245	0.103	OK
3.000	360 min Winter	322	Dif1b	PS2	0.100	0.224	1.354	0.100	Surcharged
4.000	30 min Winter	22	Dif1a	PS2	0.100	0.689	4.038	0.286	Surcharged
5.000	360 min Winter	322	Dif1c	PS2	0.100	0.221	1.321	0.092	Surcharged
1.002	15 min Winter	9	PS2	PS3	0.150	0.470	7.866	0.264	Surcharged
6.000	15 min Summer	5	RWP1	PS5	0.050	0.000	0.000	0.000	OK
7.000	15 min Winter	8	RWP2	PS5	0.065	1.248	4.503	0.186	OK
6.001	15 min Winter	9	PS5	PS3	0.100	0.468	3.594	0.418	Surcharged
8.000	30 min Summer	14	YG1	PS3	0.100	0.186	1.022	0.070	Surcharged
9.000	720 min Summer	454	RWP3	PS3	0.100	0.028	0.217	0.010	Surcharged
10.000	15 min Winter	8	Dif2b	PS3	0.100	1.100	5.825	0.182	Surcharged
11.000	600 min Summer	412	Dif2a	PS3	0.100	0.033	0.231	0.007	Surcharged
1.003	180 min Winter	157	PS3	PS4	0.023	1.803	3.001	0.120	OK

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWP6	30 min Summer	17	10.575	0.326	5.221		Flood Risk
PS1	30 min Summer	18	10.553	0.053	8.764		Surcharged
Dif1d	15 min Winter	8	10.526	0.026	4.726		OK
Dif1b	120 min Winter	110	10.108	0.360	0.000		Flood Risk
Dif1a	120 min Winter	110	10.108	0.358	0.803		Surcharged
Dif1c	120 min Winter	109	10.108	0.360	0.009		Flood Risk
PS2	120 min Winter	109	10.108	0.560	1.749		Flood Risk
RWP1	120 min Winter	108	10.107	0.107	0.002		Surcharged
RWP2	120 min Winter	108	10.107	0.107	0.317		Surcharged
PS5	120 min Winter	108	10.107	0.557	0.318		Surcharged
YG1	120 min Winter	110	10.106	0.754	0.014		Flood Risk
RWP3	120 min Winter	108	10.106	0.456	0.007		Flood Risk
Dif2b	120 min Winter	109	10.106	0.523	0.454		Flood Risk
Dif2a	120 min Winter	109	10.106	0.468	0.000		Flood Risk
PS3	120 min Winter	109	10.106	0.526	2.832		Flood Risk
PS4	480 min Summer	391	8.952	0.022	3.001		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	30 min Summer	18	RWP6	PS1	0.077	0.942	5.659	0.885	OK
1.001	30 min Summer	18	PS1	PS2	0.077	1.229	7.941	0.666	OK
2.000	15 min Winter	8	Dif1d	PS2	0.063	1.664	4.710	0.150	OK
3.000	960 min Summer	663	Dif1b	PS2	0.100	0.262	1.388	0.102	Surcharged
4.000	15 min Winter	11	Dif1a	PS2	0.100	0.727	4.280	0.303	Surcharged
5.000	960 min Summer	663	Dif1c	PS2	0.100	0.282	1.502	0.105	Surcharged
1.002	15 min Winter	8	PS2	PS3	0.150	0.544	9.296	0.312	Surcharged
6.000	120 min Winter	96	RWP1	PS5	0.100	0.026	0.137	0.010	Surcharged
7.000	120 min Winter	96	RWP2	PS5	0.100	0.735	2.350	0.097	Surcharged
6.001	15 min Winter	9	PS5	PS3	0.100	0.647	5.079	0.591	Surcharged
8.000	30 min Winter	12	YG1	PS3	0.100	0.193	1.126	0.077	Surcharged
9.000	1440 min Summer	832	RWP3	PS3	0.100	0.029	0.231	0.010	Surcharged
10.000	15 min Winter	8	Dif2b	PS3	0.100	1.104	8.506	0.266	Surcharged
11.000	960 min Winter	643	Dif2a	PS3	0.100	0.033	0.257	0.008	Surcharged
1.003	480 min Summer	391	PS3	PS4	0.023	1.803	3.001	0.120	OK