SOUTH SITE CALCULATIONS 2 YR, 30 YR & 100 YR + 45% CC

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
PSW61	0.002	110	Unknown	61.482	61.100	0.282	384103.920	400700.353
PSW62	0.000	450	Type E	61.506	60.920	0.486	384104.143	400689.483
Manhole (17)	0.013	110	Unknown	61.651	60.999	0.552	384115.193	400700.443
PSW63	0.000	450	Type E	61.519	60.769	0.650	384116.351	400689.719
PS5	0.000	450	Type E	60.867	60.234	0.533	384116.571	400679.036
PSW64	0.002	110	Unknown	60.681	60.150	0.431	384104.301	400677.773
PSW65	0.006	450	Type E	60.527	60.047	0.379	384104.436	400671.617
MH10	0.000	450	Type E	60.659	59.863	0.697	384115.236	400671.727
PSW67	0.000	110	Unknown	60.134	59.700	0.334	384105.556	400658.847
PS4	0.006	450	Type E	60.255	59.528	0.627	384115.845	400658.691
PS3	0.000	180	Type E	59.961	59.700	0.161	384107.461	400651.234
MH11	0.002	450	Type E	60.471	59.405	0.916	384115.900	400651.307
MH12	0.000	450	Type E	60.150	58.692	1.308	384115.188	400639.120
Manhole (1)	0.000	450	Type E	60.033	58.626	1.257	384113.009	400632.939
Manhole (2)	0.000	450	Type E	59.634	58.554	0.929	384110.609	400626.134
Manhole (3)	0.000	450	Type E	59.199	58.485	0.563	384108.309	400619.608
Manhole (4)	0.000	450	Type E	59.200	58.417	0.633	384106.033	400613.154
MH13	0.000	450	Type E	59.280	58.341	0.788	384103.556	400606.153
Manhole (6)	0.016	450	Type E	60.138	59.550	0.488	384101.473	400636.438
Manhole (7)	0.011	450	Type E	59.947	59.100	0.747	384099.078	400629.642
Manhole (8)	0.009	450	Type E	59.239	58.650	0.489	384096.819	400622.778
Manhole (9)	0.009	450	Type E	59.238	58.441	0.697	384094.694	400616.893
Manhole (10)	0.002	450	Type E	59.131	58.221	0.760	384092.267	400610.161
PS6	0.000	180	Type E	59.548	59.050	0.398	384108.671	400591.187
Manhole (12)	0.000	180	Type E	59.583	59.012	0.471	384109.343	400593.347
Manhole (11)	0.000	450	Type E	59.057	58.295	0.613	384098.863	400597.236
Manhole (13)	0.009	450	Type E	59.040	57.750	1.140	384088.968	400600.705
Manhole (15)	0.007	110	Unknown	59.593	59.050	0.443	384106.472	400587.438
Manhole (16)	0.000	450	Type E	59.207	58.689	0.418	384096.299	400591.197
PS38	0.000	600	Type E	59.038	57.684	1.204	384086.675	400594.519
PS40	0.000	1200	Type B	58.977	56.588	2.164	384089.799	400587.939
PS39	0.020	1500	Type B	58.834	56.551	2.133	384086.354	400589.093
PR DIV 03	0.000	1200	Type B	58.581	56.233	2.048	384081.592	400583.266
EX UU0508	0.000	1050	Unknown	58.499	56.080	2.119	384074.210	400580.963

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	PSW61	61.100	PSW62	60.920	Circ	100	10.872	60	0.600	0.282	0.486
1.001	PSW62	60.920	PSW63	60.769	Circ	100	12.210	81	0.600	0.486	0.650
2.000	Manhole (17)	60.999	PSW63	60.769	Circ	100	10.786	47	0.600	0.552	0.650
1.002	PSW63	60.769	PS5	60.234	Circ	100	10.685	20	0.600	0.650	0.533
1.003	PS5	60.234	MH10	59.863	Circ	100	7.430	20	0.600	0.533	0.697
3.000	PSW64	60.150	PSW65	60.047	Circ	100	6.157	60	0.600	0.431	0.379
3.001	PSW65	60.047	MH10	59.863	Circ	100	10.800	58	0.600	0.379	0.697
1.004	MH10	59.863	PS4	59.529	Circ	100	13.050	39	0.600	0.697	0.627
4.000	PSW67	59.700	PS4	59.528	Circ	100	10.291	60	0.600	0.334	0.627
1.005	PS4	59.529	MH11	59.455	Circ	100	7.384	100	0.600	0.627	0.916
5.000	PS3	59.700	MH11	59.455	Circ	100	8.439	34	0.600	0.161	0.916
1.006	MH11	59.405	MH12	58.692	Circ	150	12.208	17	0.600	0.916	1.308
1.007	MH12	58.692	Manhole (1)	58.626	Circ	150	6.555	100	0.600	1.308	1.257
1.008	Manhole (1)	58.626	Manhole (2)	58.554	Circ	150	7.215	100	0.600	1.257	0.929
1.009	Manhole (2)	58.554	Manhole (3)	58.485	Circ	150	6.919	100	0.600	0.929	0.563
1.010	Manhole (3)	58.485	Manhole (4)	58.417	Circ	150	6.844	100	0.600	0.563	0.633
1.011	Manhole (4)	58.417	MH13	58.341	Circ	150	7.427	98	0.600	0.633	0.788
1.012	MH13	58.341	Manhole (10)	58.221	Circ	150	11.979	100	0.600	0.788	0.760
6.000	Manhole (6)	59.550	Manhole (7)	59.100	Circ	100	7.206	16	0.600	0.488	0.747
6.001	Manhole (7)	59.100	Manhole (8)	58.650	Circ	100	7.226	16	0.600	0.747	0.489
6.002	Manhole (8)	58.650	Manhole (9)	58.441	Circ	100	6.257	30	0.600	0.489	0.697
6.003	Manhole (9)	58.441	Manhole (10)	58.271	Circ	100	7.155	42	0.600	0.697	0.760
1.013	Manhole (10)	58.221	Manhole (13)	57.750	Circ	150	10.015	21	0.600	0.760	1.140

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
7.000	PS6	59.050	Manhole (12)	59.012	Circ	100	2.262	60	0.600	0.398	0.471
7.001	Manhole (12)	59.012	Manhole (11)	58.345	Circ	100	11.178	17	0.600	0.471	0.613
7.002	Manhole (11)	58.295	Manhole (13)	57.800	Circ	150	10.485	21	0.600	0.613	1.090
1.014	Manhole (13)	57.750	PS38	57.684	Circ	150	6.598	100	0.600	1.140	1.204
8.000	Manhole (15)	59.050	Manhole (16)	58.689	Circ	100	10.845	30	0.600	0.443	0.418
8.001	Manhole (16)	58.689	PS38	57.984	Circ	100	10.182	14	0.600	0.418	0.954
1.015	PS38	57.684	PS39	57.630	Circ	150	5.435	100	0.600	1.204	1.055
9.000	PS40	56.588	PS39	56.551	Circ	225	3.633	100	0.600	2.164	2.058
1.016	PS39	56.551	PR DIV 03	56.383	Circ	150	7.525	45	0.600	2.133	2.048
1.017	PR DIV 03	56.233	EX UU0508	56.080	Circ	300	7.733	51	0.600	2.048	2.119

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
Permeable Paving 42	PSW61	2.205	61.482	61.052	0.00000000	2.00	384105.615	400704.306
Permeable Paving 47	Manhole (17)	2.463	61.651	61.221	0.00000000	2.00	384117.054	400698.189
Permeable Paving 43	PSW64	2.276	60.681	60.251	0.00000000	2.00	384101.502	400679.165
Permeable Paving 44	MH11	2.162	60.471	60.041	0.00000000	2.00	384105.795	400649.160
Permeable Paving 60	Manhole (6)	3.036	60.138	59.708	0.00000000	2.00	384089.202	400637.241
Permeable Paving 96	Manhole (6)	3.063	60.138	59.708	0.00000000	2.00	384094.137	400642.187
Permeable Paving 61	Manhole (7)	3.041	59.947	59.517	0.00000000	2.00	384089.776	400629.731
Permeable Paving 62	Manhole (8)	3.035	59.239	58.809	0.00000000	2.00	384092.778	400623.319
Permeable Paving 46	Manhole (10)	3.000	59.131	58.701	0.00000000	2.00	384091.071	400607.300
Permeable Paving 63	Manhole (13)	2.160	59.040	58.610	0.00000000	2.00	384089.877	400602.226
Permeable Paving 48	Manhole (15)	2.156	59.593	59.163	0.00000000	2.00	384103.266	400583.486

Outfall Details

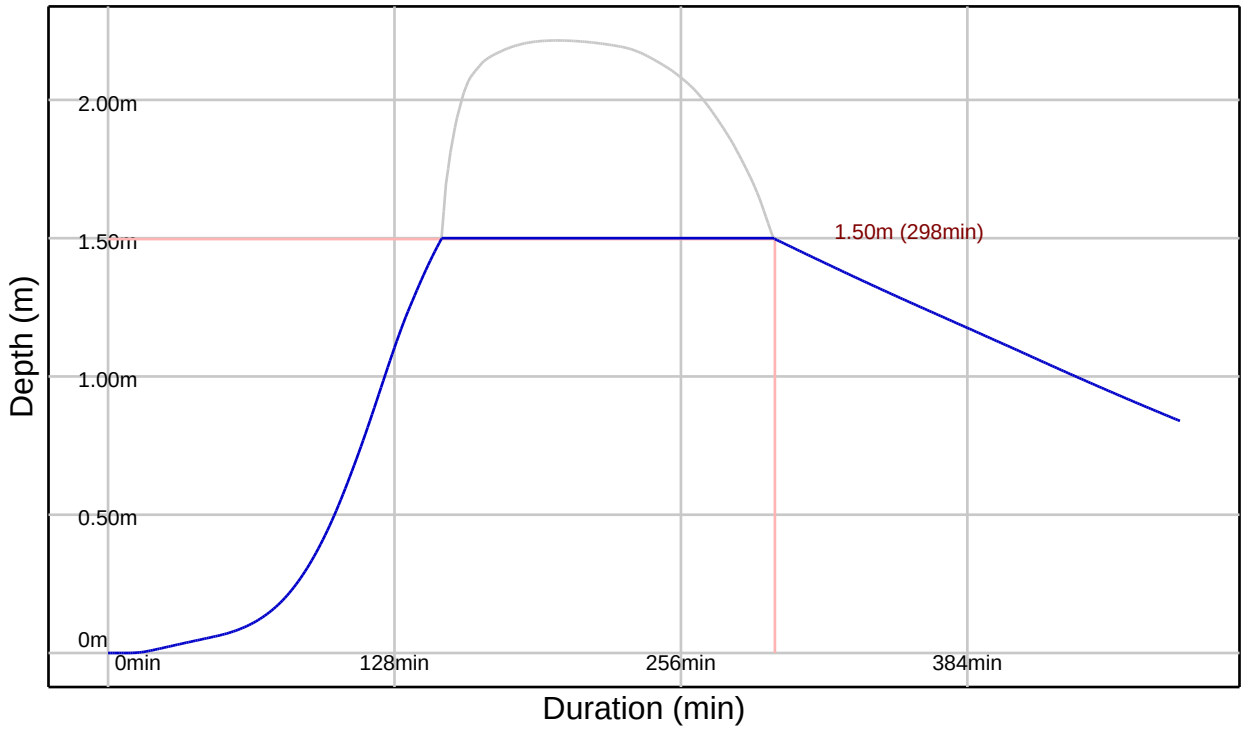
Outfall Manhole EX UU0508 : Free Discharge

Flow Control Details

Tank Structure at Manhole PS40

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
56.588	1.500	100.00	31.248	31.248	46.872	0.00000000	0.00000000	2.00

Tank 2 at PS40 (100Yr+45% 240Min Winter)

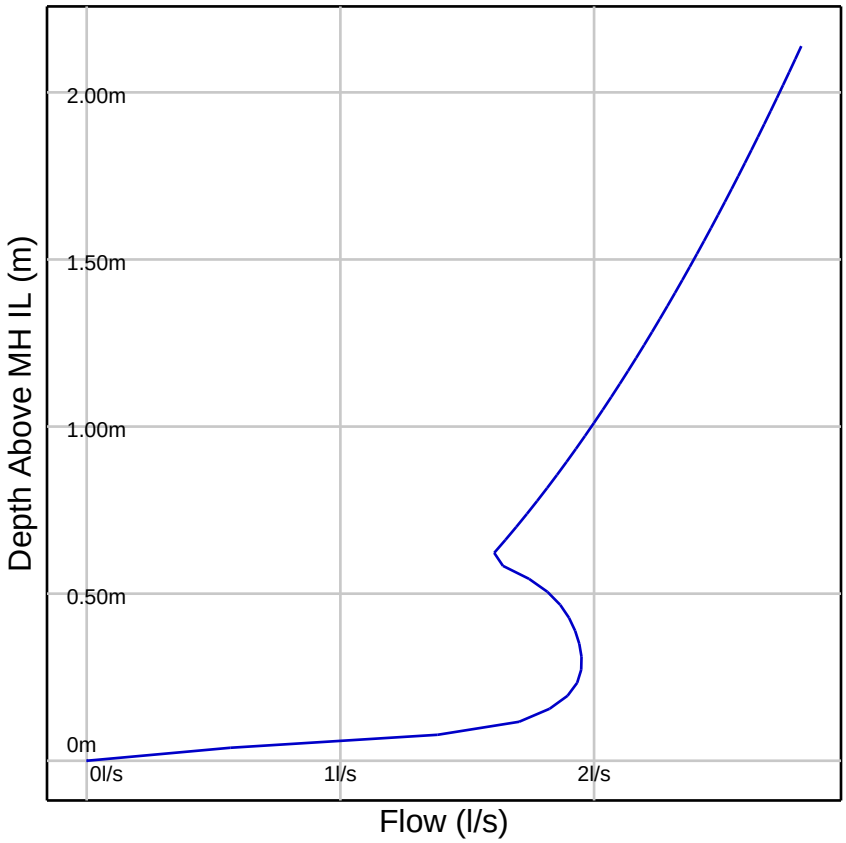


Controls within Manhole PS39

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0067-2600-1800-2600	1.800	2.600	0.000	0.295	1.951	0.600	1.581

Hydro-Brake® Optimum Control from PS39 to PR DIV 03



Simulation Settings

FSR: M5-60=18.00, R=0.36, Locale=England and Wales

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: (2, +0%), (30, +0%), (100, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr 15Min Winter	36.942	0.00	0.45	30Yr 720Min Winter	4.528	0.00	0.00
2Yr 15Min Summer	36.942	0.00	0.45	30Yr 960Min Summer	3.643	0.00	0.00
2Yr 30Min Winter	23.956	0.00	0.37	30Yr 960Min Winter	3.643	0.00	0.00
2Yr 30Min Summer	23.956	0.00	0.37	30Yr 1440Min Summer	2.677	0.00	0.00
2Yr 60Min Winter	15.001	0.00	0.29	30Yr 1440Min Winter	2.677	0.00	0.00
2Yr 60Min Summer	15.001	0.00	0.29	30Yr 2160Min Summer	1.965	0.00	0.00
2Yr 120Min Winter	9.225	0.00	0.12	30Yr 2160Min Winter	1.965	0.00	0.00
2Yr 120Min Summer	9.225	0.00	0.12	30Yr 2880Min Summer	1.577	0.00	0.00
2Yr 180Min Summer	6.915	0.00	0.00	30Yr 2880Min Winter	1.577	0.00	0.00
2Yr 180Min Winter	6.915	0.00	0.00	30Yr 4320Min Summer	1.155	0.00	0.00
2Yr 240Min Summer	5.634	0.00	0.00	30Yr 4320Min Winter	1.155	0.00	0.00
2Yr 240Min Winter	5.634	0.00	0.00	30Yr 5760Min Summer	0.925	0.00	0.00
2Yr 360Min Summer	4.221	0.00	0.00	30Yr 5760Min Winter	0.925	0.00	0.00
2Yr 360Min Winter	4.221	0.00	0.00	30Yr 7200Min Summer	0.778	0.00	0.00
2Yr 480Min Summer	3.435	0.00	0.00	30Yr 7200Min Winter	0.778	0.00	0.00
2Yr 480Min Winter	3.435	0.00	0.00	30Yr 8640Min Summer	0.676	0.00	0.00
2Yr 600Min Summer	2.927	0.00	0.00	30Yr 8640Min Winter	0.676	0.00	0.00
2Yr 600Min Winter	2.927	0.00	0.00	30Yr 10080Min Summer	0.600	0.00	0.00
2Yr 720Min Summer	2.568	0.00	0.00	30Yr 10080Min Winter	0.600	0.00	0.00
2Yr 720Min Winter	2.568	0.00	0.00	100Yr+45% 15Min Summer	122.849	0.00	0.46
2Yr 960Min Summer	2.089	0.00	0.00	100Yr+45% 15Min Winter	122.849	0.00	0.46
2Yr 960Min Winter	2.089	0.00	0.00	100Yr+45% 30Min Summer	82.249	0.00	0.42
2Yr 1440Min Winter	1.561	0.00	0.00	100Yr+45% 30Min Winter	82.249	0.00	0.43
2Yr 1440Min Summer	1.561	0.00	0.00	100Yr+45% 60Min Summer	52.627	0.00	0.54
2Yr 2160Min Winter	1.167	0.00	0.00	100Yr+45% 60Min Winter	52.627	0.00	0.54
2Yr 2160Min Summer	1.167	0.00	0.00	100Yr+45% 120Min Summer	32.592	0.00	-0.06
2Yr 2880Min Summer	0.949	0.00	0.00	100Yr+45% 120Min Winter	32.592	0.00	-0.14
2Yr 2880Min Winter	0.949	0.00	0.00	100Yr+45% 180Min Summer	24.304	0.00	-0.25
2Yr 4320Min Summer	0.710	0.00	0.00	100Yr+45% 180Min Winter	24.304	0.00	-0.30
2Yr 4320Min Winter	0.710	0.00	0.00	100Yr+45% 240Min Summer	19.616	0.00	-0.23
2Yr 5760Min Summer	0.578	0.00	0.00	100Yr+45% 240Min Winter	19.616	0.00	-0.24
2Yr 5760Min Winter	0.578	0.00	0.00	100Yr+45% 360Min Summer	14.378	0.00	-0.18
2Yr 7200Min Summer	0.492	0.00	0.00	100Yr+45% 360Min Winter	14.378	0.00	-0.15
2Yr 7200Min Winter	0.492	0.00	0.00	100Yr+45% 480Min Summer	11.541	0.00	-0.14
2Yr 8640Min Summer	0.432	0.00	0.00	100Yr+45% 480Min Winter	11.541	0.00	-0.05
2Yr 8640Min Winter	0.432	0.00	0.00	100Yr+45% 600Min Summer	9.724	0.00	-0.08
2Yr 10080Min Winter	0.387	0.00	0.00	100Yr+45% 600Min Winter	9.724	0.00	0.00
2Yr 10080Min Summer	0.387	0.00	0.00	100Yr+45% 720Min Summer	8.449	0.00	0.00
30Yr 15Min Summer	65.624	0.00	0.37	100Yr+45% 720Min Winter	8.449	0.00	0.00
30Yr 15Min Winter	65.624	0.00	0.36	100Yr+45% 960Min Summer	6.764	0.00	0.00
30Yr 30Min Summer	43.507	0.00	0.40	100Yr+45% 960Min Winter	6.764	0.00	0.00
30Yr 30Min Winter	43.507	0.00	0.39	100Yr+45% 1440Min Summer	4.934	0.00	0.00
30Yr 60Min Summer	27.653	0.00	0.39	100Yr+45% 1440Min Winter	4.934	0.00	0.00
30Yr 60Min Winter	27.653	0.00	0.39	100Yr+45% 2160Min Summer	3.592	0.00	0.00
30Yr 120Min Summer	17.088	0.00	0.21	100Yr+45% 2160Min Winter	3.592	0.00	0.00
30Yr 120Min Winter	17.088	0.00	0.21	100Yr+45% 2880Min Summer	2.864	0.00	0.00
30Yr 180Min Summer	12.763	0.00	0.09	100Yr+45% 2880Min Winter	2.864	0.00	0.00
30Yr 180Min Winter	12.763	0.00	0.08	100Yr+45% 4320Min Summer	2.078	0.00	0.00
30Yr 240Min Summer	10.331	0.00	0.05	100Yr+45% 4320Min Winter	2.078	0.00	0.00
30Yr 240Min Winter	10.331	0.00	0.05	100Yr+45% 5760Min Summer	1.653	0.00	0.00
30Yr 360Min Summer	7.624	0.00	0.00	100Yr+45% 5760Min Winter	1.653	0.00	0.00
30Yr 360Min Winter	7.624	0.00	0.00	100Yr+45% 7200Min Summer	1.383	0.00	0.00
30Yr 480Min Summer	6.146	0.00	0.00	100Yr+45% 7200Min Winter	1.383	0.00	0.00
30Yr 480Min Winter	6.146	0.00	0.00	100Yr+45% 8640Min Summer	1.196	0.00	0.00

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 600Min Summer	5.196	0.00	0.00	100Yr+45% 8640Min Winter	1.196	0.00	0.00
30Yr 600Min Winter	5.196	0.00	0.00	100Yr+45% 10080Min Winter	1.056	0.00	0.00
30Yr 720Min Summer	4.528	0.00	0.00	100Yr+45% 10080Min Summer	1.056	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):

2yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PSW61	1440 min Summer	830	61.103	0.003	0.017		OK
PSW62	1440 min Summer	832	60.923	0.004	0.017		OK
Manhole (17)	15 min Summer	8	61.035	0.036	2.327		OK
PSW63	15 min Summer	8	60.796	0.028	2.311		OK
PS5	15 min Summer	8	60.261	0.027	2.295		OK
PSW64	60 min Summer	38	60.160	0.010	0.152		OK
PSW65	15 min Summer	8	60.075	0.027	1.336		OK
MH10	15 min Summer	9	59.904	0.042	3.567		OK
PSW67	15 min Winter	0	59.700	0.000	0.000		OK
PS4	15 min Summer	9	59.599	0.071	4.935		OK
PS3	15 min Winter	0	59.700	0.000	0.000		OK
MH11	15 min Summer	9	59.439	0.034	4.977		OK
MH12	15 min Summer	9	58.748	0.056	4.982		OK
Manhole (1)	15 min Summer	9	58.682	0.055	4.989		OK
Manhole (2)	15 min Summer	9	58.610	0.056	4.988		OK
Manhole (3)	15 min Summer	9	58.541	0.055	4.981		OK
Manhole (4)	15 min Summer	9	58.472	0.055	4.966		OK
MH13	15 min Summer	10	58.396	0.055	4.921		OK
Manhole (6)	15 min Summer	8	59.576	0.026	2.362		OK
Manhole (7)	15 min Summer	8	59.135	0.035	4.195		OK
Manhole (8)	15 min Summer	8	58.700	0.050	5.696		OK
Manhole (9)	15 min Summer	8	58.512	0.072	7.716		OK
Manhole (10)	15 min Summer	9	58.279	0.058	12.452		OK
PS6	15 min Winter	0	59.050	0.000	0.000		OK
Manhole (12)	15 min Winter	0	59.012	0.000	0.000		OK
Manhole (11)	15 min Winter	0	58.295	0.000	0.000		OK
Manhole (13)	15 min Summer	9	57.857	0.107	13.916		OK
Manhole (15)	15 min Summer	8	59.073	0.023	1.238		OK
Manhole (16)	15 min Summer	8	58.707	0.019	1.228		OK
PS38	15 min Summer	9	57.791	0.107	15.112		OK
PS40	120 min Summer	90	56.907	0.319	0.011		Surcharged
PS39	120 min Summer	90	56.907	0.356	1.958		Surcharged
PR DIV 03	60 min Summer	62	56.256	0.023	1.950		OK
EX UU0508	60 min Summer	62	56.102	0.022	1.950		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	1440 min Summer	831	PSW61	PSW62	0.004	0.193	0.017	0.002	OK
1.001	15 min Summer	8	PSW62	PSW63	0.014	0.000	0.000	0.000	OK
2.000	15 min Summer	8	Manhole (17)	PSW63	0.032	1.062	2.311	0.261	OK
1.002	15 min Summer	8	PSW63	PS5	0.028	1.300	2.295	0.169	OK
1.003	15 min Summer	9	PS5	MH10	0.034	0.955	2.283	0.168	OK
3.000	60 min Summer	38	PSW64	PSW65	0.014	0.265	0.153	0.020	OK
3.001	15 min Summer	8	PSW65	MH10	0.034	0.554	1.324	0.167	OK
1.004	15 min Summer	9	MH10	PS4	0.056	0.798	3.591	0.370	OK
4.000	15 min Summer	9	PSW67	PS4	0.035	0.000	0.000	0.000	OK
1.005	15 min Summer	9	PS4	MH11	0.069	0.863	4.977	0.826	OK
5.000	15 min Winter	0	PS3	MH11	0.000	0.000	0.000	0.000	OK
1.006	15 min Summer	9	MH11	MH12	0.045	1.124	4.982	0.115	OK
1.007	15 min Summer	9	MH12	Manhole (1)	0.056	0.838	4.989	0.281	OK
1.008	15 min Summer	9	Manhole (1)	Manhole (2)	0.056	0.839	4.988	0.281	OK
1.009	15 min Summer	9	Manhole (2)	Manhole (3)	0.055	0.838	4.981	0.281	OK
1.010	15 min Summer	9	Manhole (3)	Manhole (4)	0.055	0.841	4.966	0.280	OK
1.011	15 min Summer	9	Manhole (4)	MH13	0.055	0.849	4.944	0.276	OK
1.012	15 min Summer	10	MH13	Manhole (10)	0.056	0.860	4.952	0.279	OK
6.000	15 min Summer	8	Manhole (6)	Manhole (7)	0.031	1.150	2.351	0.154	OK
6.001	15 min Summer	8	Manhole (7)	Manhole (8)	0.043	1.303	4.179	0.275	OK

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
6.002	15 min Summer	8	Manhole (8)	Manhole (9)	0.061	1.132	5.668	0.510	OK
6.003	15 min Summer	8	Manhole (9)	Manhole (10)	0.069	1.320	7.667	0.821	OK
1.013	15 min Summer	9	Manhole (10)	Manhole (13)	0.082	1.255	12.452	0.321	OK
7.000	15 min Winter	0	PS6	Manhole (12)	0.000	0.000	0.000	0.000	OK
7.001	15 min Winter	0	Manhole (12)	Manhole (11)	0.000	0.000	0.000	0.000	OK
7.002	15 min Summer	9	Manhole (11)	Manhole (13)	0.028	0.000	0.000	0.000	OK
1.014	15 min Summer	9	Manhole (13)	PS38	0.107	1.033	13.907	0.784	OK
8.000	15 min Summer	8	Manhole (15)	Manhole (16)	0.021	1.028	1.228	0.111	OK
8.001	15 min Summer	8	Manhole (16)	PS38	0.019	1.218	1.219	0.076	OK
1.015	15 min Summer	9	PS38	PS39	0.102	1.178	15.100	0.852	OK
9.000	240 min Winter	277	PS40	PS39	0.225	0.391	4.026	0.078	OK
1.016	240 min Summer	151	PS39	PR DIV 03	0.026	0.934	1.950	0.073	OK
1.017	60 min Summer	62	PR DIV 03	EX UU0508	0.023	0.804	1.950	0.012	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Permeable Paving 42	1440 min Summer	830	61.104	0.052	0.017			OK
Permeable Paving 47	60 min Summer	37	61.232	0.011	0.166			OK
Permeable Paving 43	60 min Summer	37	60.261	0.010	0.153			OK
Permeable Paving 44	60 min Summer	37	60.051	0.010	0.146			OK
Permeable Paving 60	60 min Summer	38	59.719	0.011	0.172			OK
Permeable Paving 96	60 min Summer	38	59.719	0.011	0.173			OK
Permeable Paving 61	60 min Summer	38	59.528	0.011	0.172			OK
Permeable Paving 62	60 min Summer	38	58.820	0.011	0.172			OK
Permeable Paving 46	60 min Summer	38	58.712	0.011	0.170			OK
Permeable Paving 63	60 min Summer	37	58.620	0.010	0.146			OK
Permeable Paving 48	60 min Summer	37	59.173	0.010	0.146			OK

Return Period (yrs) + Climate Change (%):

30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PSW61	240 min Summer	144	61.108	0.008	0.095		OK
PSW62	240 min Summer	145	60.928	0.008	0.095		OK
Manhole (17)	15 min Summer	8	61.049	0.050	4.136		OK
PSW63	15 min Summer	8	60.807	0.038	4.111		OK
PS5	15 min Summer	8	60.271	0.037	4.085		OK
PSW64	30 min Summer	24	60.165	0.015	0.363		OK
PSW65	15 min Summer	8	60.084	0.037	2.374		OK
MH10	15 min Summer	9	59.925	0.063	6.325		OK
PSW67	15 min Summer	10	59.701	0.001	0.000		OK
PS4	15 min Summer	9	59.701	0.173	8.744		Surcharged
PS3	15 min Summer	0	59.700	0.000	0.000		OK
MH11	15 min Summer	9	59.450	0.045	8.686		OK
MH12	15 min Summer	9	58.769	0.077	8.678		OK
Manhole (1)	15 min Summer	9	58.703	0.077	8.648		OK
Manhole (2)	15 min Summer	10	58.631	0.077	8.589		OK
Manhole (3)	15 min Summer	10	58.562	0.077	8.625		OK
Manhole (4)	15 min Summer	10	58.493	0.076	8.652		OK
MH13	15 min Summer	10	58.417	0.076	8.672		OK
Manhole (6)	15 min Summer	8	59.585	0.035	4.198		OK
Manhole (7)	15 min Summer	8	59.148	0.048	7.458		OK
Manhole (8)	15 min Summer	9	58.833	0.183	9.803		Surcharged
Manhole (9)	15 min Summer	9	58.683	0.242	12.572		Surcharged
Manhole (10)	15 min Summer	10	58.307	0.086	20.968		OK
PS6	15 min Summer	0	59.050	0.000	0.000		OK
Manhole (12)	15 min Summer	0	59.012	0.000	0.000		OK
Manhole (11)	15 min Summer	0	58.295	0.000	0.000		OK
Manhole (13)	15 min Summer	10	58.012	0.262	23.222		Surcharged
Manhole (15)	15 min Summer	8	59.081	0.031	2.200		OK
Manhole (16)	15 min Summer	8	58.713	0.025	2.186		OK
PS38	15 min Summer	10	57.884	0.200	25.130		Surcharged
PS40	180 min Winter	154	57.402	0.814	0.014		Surcharged
PS39	180 min Winter	154	57.402	0.851	1.838		Surcharged
PR DIV 03	720 min Winter	615	56.256	0.023	1.950		OK
EX UU0508	960 min Summer	728	56.102	0.022	1.950		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	240 min Summer	144	PSW61	PSW62	0.008	0.349	0.095	0.012	OK
1.001	15 min Summer	8	PSW62	PSW63	0.019	0.000	0.000	0.000	OK
2.000	15 min Summer	8	Manhole (17)	PSW63	0.044	1.234	4.111	0.464	OK
1.002	15 min Summer	8	PSW63	PS5	0.037	1.522	4.085	0.300	OK
1.003	15 min Summer	9	PS5	MH10	0.050	1.084	4.069	0.299	OK
3.000	60 min Summer	38	PSW64	PSW65	0.022	0.366	0.364	0.047	OK
3.001	15 min Summer	9	PSW65	MH10	0.050	0.642	2.357	0.298	OK
1.004	15 min Summer	9	MH10	PS4	0.081	0.929	6.357	0.655	OK
4.000	15 min Summer	10	PSW67	PS4	0.051	0.002	0.002	0.000	OK
1.005	15 min Summer	9	PS4	MH11	0.096	1.121	8.670	1.439	OK
5.000	15 min Summer	0	PS3	MH11	0.000	0.000	0.000	0.000	OK
1.006	15 min Summer	9	MH11	MH12	0.061	1.284	8.678	0.201	OK
1.007	15 min Summer	9	MH12	Manhole (1)	0.077	0.949	8.648	0.488	OK
1.008	15 min Summer	9	Manhole (1)	Manhole (2)	0.077	0.950	8.616	0.486	OK
1.009	15 min Summer	10	Manhole (2)	Manhole (3)	0.077	0.950	8.625	0.486	OK
1.010	15 min Summer	10	Manhole (3)	Manhole (4)	0.076	0.956	8.652	0.488	OK
1.011	15 min Summer	10	Manhole (4)	MH13	0.076	0.965	8.672	0.485	OK
1.012	15 min Summer	10	MH13	Manhole (10)	0.081	0.955	8.690	0.490	OK
6.000	15 min Summer	8	Manhole (6)	Manhole (7)	0.042	1.342	4.182	0.275	OK
6.001	15 min Summer	8	Manhole (7)	Manhole (8)	0.074	1.384	7.434	0.489	OK
6.002	30 min Summer	17	Manhole (8)	Manhole (9)	0.100	1.154	8.756	0.788	Surcharged
6.003	15 min Winter	9	Manhole (9)	Manhole (10)	0.100	1.483	11.645	1.246	Surcharged
1.013	15 min Summer	10	Manhole (10)	Manhole (13)	0.118	1.407	20.992	0.542	OK
7.000	15 min Summer	0	PS6	Manhole (12)	0.000	0.000	0.000	0.000	OK

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
7.001	15 min Summer	0	Manhole (12)	Manhole (11)	0.000	0.000	0.000	0.000	OK
7.002	15 min Summer	9	Manhole (11)	Manhole (13)	0.075	0.000	0.000	0.000	OK
1.014	15 min Winter	10	Manhole (13)	PS38	0.150	1.237	21.867	1.233	Surcharged
8.000	15 min Summer	8	Manhole (15)	Manhole (16)	0.028	1.208	2.186	0.197	OK
8.001	15 min Summer	8	Manhole (16)	PS38	0.025	1.437	2.173	0.136	OK
1.015	15 min Summer	10	PS38	PS39	0.144	1.440	25.129	1.417	OK
9.000	480 min Winter	619	PS40	PS39	0.225	0.396	3.634	0.070	OK
1.016	960 min Winter	533	PS39	PR DIV 03	0.026	0.934	1.950	0.073	OK
1.017	960 min Summer	728	PR DIV 03	EX UU0508	0.023	0.804	1.950	0.012	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Permeable Paving 42	240 min Summer	143	61.110	0.058	0.096			OK
Permeable Paving 47	60 min Summer	38	61.241	0.019	0.406			OK
Permeable Paving 43	30 min Summer	23	60.270	0.018	0.387			OK
Permeable Paving 44	30 min Summer	23	60.059	0.018	0.368			OK
Permeable Paving 60	60 min Summer	38	59.729	0.021	0.501			OK
Permeable Paving 96	60 min Summer	38	59.729	0.021	0.505			OK
Permeable Paving 61	60 min Summer	38	59.538	0.021	0.502			OK
Permeable Paving 62	60 min Summer	38	58.830	0.021	0.501			OK
Permeable Paving 46	60 min Summer	38	58.722	0.021	0.495			OK
Permeable Paving 63	30 min Summer	23	58.628	0.018	0.368			OK
Permeable Paving 48	30 min Summer	23	59.181	0.018	0.367			OK

Return Period (yrs) + Climate Change (%):

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PSW61	60 min Summer	42	61.116	0.016	0.448		OK
PSW62	60 min Summer	43	60.937	0.017	0.445		OK
Manhole (17)	15 min Summer	8	61.076	0.077	7.770		OK
PSW63	15 min Summer	8	60.822	0.053	7.706		OK
PS5	15 min Summer	9	60.309	0.075	7.598		OK
PSW64	15 min Summer	11	60.240	0.090	0.419		OK
PSW65	15 min Summer	11	60.238	0.190	2.874		Flood Risk
MH10	15 min Summer	10	60.209	0.347	9.606		Surcharged
PSW67	15 min Summer	10	59.896	0.196	0.186		Flood Risk
PS4	15 min Summer	10	59.895	0.367	13.012		Surcharged
PS3	15 min Summer	0	59.700	0.000	0.000		OK
MH11	15 min Summer	11	59.460	0.056	12.946		OK
MH12	240 min Winter	201	58.807	0.115	0.768		OK
Manhole (1)	240 min Winter	201	58.807	0.181	0.770		Surcharged
Manhole (2)	240 min Winter	200	58.807	0.253	0.781		Surcharged
Manhole (3)	240 min Winter	200	58.807	0.322	0.779		Surcharged
Manhole (4)	240 min Winter	201	58.807	0.390	0.772		Surcharged
MH13	240 min Winter	201	58.807	0.466	0.771		Surcharged
Manhole (6)	15 min Summer	9	59.607	0.057	7.752		OK
Manhole (7)	15 min Summer	10	59.390	0.290	12.075		Surcharged
Manhole (8)	15 min Summer	10	59.072	0.422	16.441		Flood Risk
Manhole (9)	15 min Summer	10	58.905	0.464	15.034		Surcharged
Manhole (10)	240 min Winter	200	58.806	0.585	1.912		Surcharged
PS6	15 min Summer	0	59.050	0.000	0.000		OK
Manhole (12)	15 min Summer	0	59.012	0.000	0.000		OK
Manhole (11)	240 min Winter	202	58.805	0.511	0.034		Flood Risk
Manhole (13)	240 min Winter	200	58.805	1.055	2.132		Flood Risk
Manhole (15)	15 min Summer	8	59.094	0.044	4.150		OK
Manhole (16)	240 min Winter	201	58.804	0.116	0.182		Surcharged
PS38	240 min Winter	201	58.804	1.120	2.345		Flood Risk
PS40	240 min Winter	201	58.803	2.215	0.006		Surcharged
PS39	240 min Winter	201	58.803	2.252	2.826		Flood Risk
PR DIV 03	180 min Summer	133	56.260	0.027	2.817		OK
EX UU0508	180 min Summer	133	56.106	0.026	2.817		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	42	PSW61	PSW62	0.017	0.533	0.448	0.057	OK
1.001	15 min Summer	21	PSW62	PSW63	0.027	0.272	0.140	0.021	OK
2.000	15 min Summer	8	Manhole (17)	PSW63	0.065	1.430	7.706	0.869	OK
1.002	15 min Summer	9	PSW63	PS5	0.064	1.732	7.704	0.566	OK
1.003	15 min Summer	10	PS5	MH10	0.088	1.118	7.480	0.549	OK
3.000	15 min Summer	12	PSW64	PSW65	0.095	0.582	1.648	0.211	OK
3.001	30 min Summer	20	PSW65	MH10	0.100	0.663	3.934	0.497	Surcharged
1.004	30 min Summer	18	MH10	PS4	0.100	1.166	9.157	0.943	Surcharged
4.000	15 min Winter	14	PSW67	PS4	0.100	0.296	1.815	0.232	Surcharged
1.005	30 min Summer	18	PS4	MH11	0.100	1.566	12.303	2.042	Surcharged
5.000	15 min Summer	11	PS3	MH11	0.003	0.000	0.000	0.000	OK
1.006	15 min Summer	11	MH11	MH12	0.079	1.386	12.959	0.300	OK
1.007	240 min Winter	201	MH12	Manhole (1)	0.133	0.800	4.128	0.233	OK
1.008	240 min Winter	178	Manhole (1)	Manhole (2)	0.150	0.801	4.128	0.233	Surcharged
1.009	180 min Summer	128	Manhole (2)	Manhole (3)	0.150	0.915	7.245	0.409	Surcharged
1.010	180 min Summer	121	Manhole (3)	Manhole (4)	0.150	0.920	7.250	0.409	Surcharged
1.011	180 min Summer	118	Manhole (4)	MH13	0.150	0.930	7.253	0.405	Surcharged
1.012	30 min Summer	21	MH13	Manhole (10)	0.150	0.852	12.856	0.724	Surcharged
6.000	15 min Summer	9	Manhole (6)	Manhole (7)	0.079	1.406	7.769	0.510	OK
6.001	30 min Summer	17	Manhole (7)	Manhole (8)	0.100	1.540	12.094	0.795	Surcharged
6.002	30 min Summer	23	Manhole (8)	Manhole (9)	0.100	1.427	11.209	1.009	Surcharged
6.003	15 min Winter	9	Manhole (9)	Manhole (10)	0.100	1.884	14.796	1.584	Surcharged
1.013	30 min Summer	21	Manhole (10)	Manhole (13)	0.150	1.552	27.427	0.708	Surcharged
7.000	15 min Summer	0	PS6	Manhole (12)	0.000	0.000	0.000	0.000	OK

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
7.001	120 min Summer	85	Manhole (12)	Manhole (11)	0.050	0.000	0.000	0.000	OK
7.002	120 min Winter	161	Manhole (11)	Manhole (13)	0.150	0.031	0.379	0.010	Surcharged
1.014	30 min Summer	19	Manhole (13)	PS38	0.150	1.711	30.238	1.706	Surcharged
8.000	240 min Winter	184	Manhole (15)	Manhole (16)	0.055	0.970	1.008	0.091	OK
8.001	240 min Winter	184	Manhole (16)	PS38	0.100	1.153	1.008	0.063	Surcharged
1.015	30 min Summer	18	PS38	PS39	0.150	1.898	33.539	1.892	Surcharged
9.000	960 min Winter	1211	PS40	PS39	0.225	0.392	4.078	0.079	OK
1.016	180 min Winter	131	PS39	PR DIV 03	0.032	1.036	2.817	0.106	OK
1.017	180 min Summer	133	PR DIV 03	EX UU0508	0.027	0.899	2.817	0.018	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Permeable Paving 42	60 min Summer	42	61.125	0.073	0.443			OK
Permeable Paving 47	30 min Summer	22	61.252	0.030	0.757			OK
Permeable Paving 43	30 min Summer	22	60.280	0.029	0.699			OK
Permeable Paving 44	30 min Summer	22	60.070	0.028	0.664			OK
Permeable Paving 60	30 min Summer	22	59.741	0.033	0.933			OK
Permeable Paving 96	30 min Summer	22	59.741	0.034	0.941			OK
Permeable Paving 61	30 min Summer	22	59.550	0.033	0.934			OK
Permeable Paving 62	30 min Summer	20	59.040	0.231	1.245			OK
Permeable Paving 46	240 min Winter	201	58.806	0.105	0.076			OK
Permeable Paving 63	240 min Winter	201	58.805	0.195	0.059			OK
Permeable Paving 48	30 min Summer	22	59.191	0.028	0.662			OK