

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
PS15-RE	0.009	180	Type E	17.550	17.075	0.325	494856.335	106209.065
PS16	0.003	450	Type D	17.550	16.997	0.403	494845.918	106214.285
PS32-RE	0.006	180	Type E	17.550	17.188	0.262	494864.805	106229.492
PS34-RE	0.000	180	Type E	17.575	17.176	0.299	494862.669	106214.799
PS33	0.000	450	Type D	17.575	17.081	0.394	494861.562	106222.338
PS17	0.004	450	Type D	17.597	16.902	0.545	494852.392	106227.072
PS35-RE	0.000	180	Type E	17.558	17.105	0.303	494839.187	106227.517
PS10	0.009	450	Type E	17.617	17.079	0.389	494842.856	106226.035
PS11-RE	0.003	180	Type E	17.723	17.373	0.250	494847.749	106235.781
PS35	0.000	450	Type D	17.640	17.049	0.441	494844.849	106230.006
PS36-DIF	0.009	300x300	Type E	17.735	17.038	0.547	494846.404	106229.244
PS21-DIF	0.000	300x300	Type E	17.638	16.887	0.601	494850.440	106228.026
PP5-Dummy Outfall	0.000	100	Unknown	17.554	16.814	0.590	494843.677	106219.273

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	PS15-RE	17.075	PS16	16.997	Circ	150	11.652	150	0.600	0.325	0.403
1.001	PS16	16.997	PS17	16.902	Circ	150	14.333	150	0.600	0.403	0.545
2.000	PS32-RE	17.188	PS33	17.081	Circ	100	7.854	74	0.600	0.262	0.394
3.000	PS34-RE	17.176	PS33	17.081	Circ	100	7.619	80	0.600	0.299	0.394
2.001	PS33	17.081	PS17	16.952	Circ	100	10.320	80	0.600	0.394	0.545
1.002	PS17	16.902	PS21-DIF	16.887	Circ	150	2.172	150	0.600	0.545	0.601
4.000	PS35-RE	17.105	PS10	17.079	Circ	150	3.956	150	0.600	0.303	0.389
4.001	PS10	17.079	PS35	17.049	Circ	150	4.444	148	0.600	0.389	0.441
5.000	PS11-RE	17.373	PS35	17.099	Circ	100	6.462	24	0.600	0.250	0.441
4.002	PS35	17.049	PS36-DIF	17.038	Circ	150	1.731	153	0.600	0.441	0.547
4.003	PS36-DIF	17.038	PS21-DIF	16.887	Circ	150	4.216	28	0.600	0.547	0.601
1.003	PS21-DIF	16.887	PP5-Dummy Outfall	16.814	Circ	150	11.061	150	0.600	0.601	0.590

Outfall Details

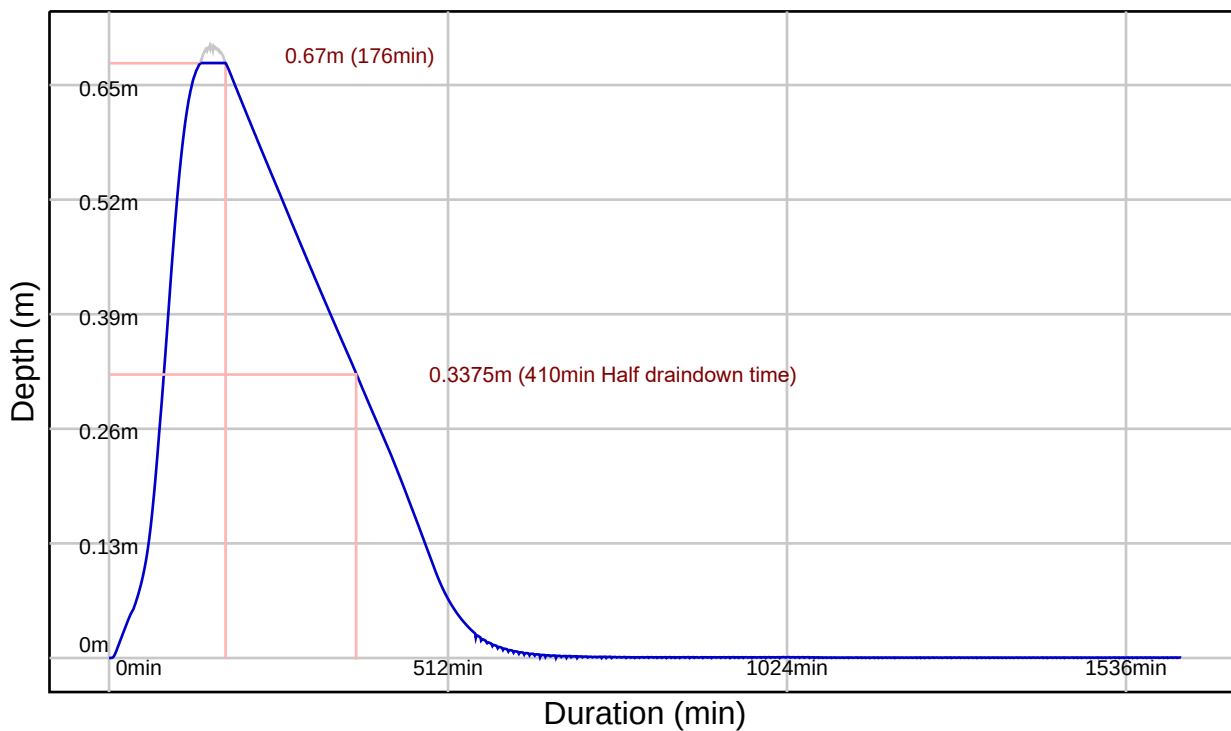
Outfall Manhole PP5-Dummy Outfall : Free Discharge

Flow Control Details

Tank Structure at Manhole PS21-DIF

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
16.850	0.675	30.00	94.049	28.215	19.045	0.07812000	0.07812000	2.00

Permeable Paving 5 at PS21-DIF (100Yr+45% 180Min Winter)



Controls within Manhole PP5-Dummy Outfall

Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.000	0.600

Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494812_106233_v5_1_0.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

Return Periods (yrs) + Climate Change: (1, +0%), (30, +40%), (100, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Item Volume Continuity Errors
1Yr 15Min Winter	15.628	0.00	1.87	
1Yr 15Min Summer	15.628	0.00	2.03	
1Yr 30Min Winter	10.316	0.00	-25.80	PS21-DIF -0.78m3, PP5-Dummy Outfall 0.19m3
1Yr 30Min Summer	10.316	0.00	-19.30	PS21-DIF -0.57m3, PP5-Dummy Outfall 0.25m3
1Yr 60Min Winter	6.595	0.00	-14.33	PS21-DIF -0.56m3, PP5-Dummy Outfall 0.20m3
1Yr 60Min Summer	6.595	0.00	-18.47	PS21-DIF -0.70m3, PP5-Dummy Outfall 0.27m3
1Yr 120Min Summer	5.323	0.00	-9.30	PS21-DIF -0.62m3, PP5-Dummy Outfall 0.23m3
1Yr 120Min Winter	5.323	0.00	-9.78	PS21-DIF -0.60m3, PP5-Dummy Outfall 0.29m3
1Yr 180Min Winter	4.511	0.00	-7.28	PS21-DIF -0.59m3, PP5-Dummy Outfall 0.23m3
1Yr 180Min Summer	4.511	0.00	-7.29	PS21-DIF -0.69m3, PP5-Dummy Outfall 0.16m3
1Yr 240Min Winter	3.753	0.00	-6.47	PS21-DIF -0.57m3, PP5-Dummy Outfall 0.25m3
1Yr 240Min Summer	3.753	0.00	-6.48	PS21-DIF -0.58m3, PP5-Dummy Outfall 0.20m3
1Yr 360Min Winter	2.919	0.00	-7.43	PS21-DIF -0.74m3, PP5-Dummy Outfall 0.24m3
1Yr 360Min Summer	2.919	0.00	-5.47	PS21-DIF -0.59m3, PP5-Dummy Outfall 0.21m3
1Yr 480Min Summer	2.427	0.00	-5.07	PS21-DIF -0.61m3, PP5-Dummy Outfall 0.25m3
1Yr 480Min Winter	2.427	0.00	-5.86	PS21-DIF -0.69m3, PP5-Dummy Outfall 0.25m3
1Yr 600Min Winter	2.074	0.00	-4.57	
1Yr 600Min Summer	2.074	0.00	-4.55	
1Yr 720Min Summer	1.811	0.00	-4.62	
1Yr 720Min Winter	1.811	0.00	-5.03	PS21-DIF -0.67m3, PP5-Dummy Outfall 0.23m3
1Yr 960Min Summer	1.465	0.00	-3.75	
1Yr 960Min Winter	1.465	0.00	0.00	
1Yr 1440Min Winter	1.102	0.00	0.00	
1Yr 1440Min Summer	1.102	0.00	0.30	
30Yr+40% 15Min Winter	115.253	0.00	-3.80	
30Yr+40% 15Min Summer	115.253	0.00	-3.57	
30Yr+40% 30Min Summer	76.731	0.00	-3.10	
30Yr+40% 30Min Winter	76.731	0.00	-2.34	
30Yr+40% 60Min Summer	48.847	0.00	-1.58	
30Yr+40% 60Min Winter	48.847	0.00	-1.71	
30Yr+40% 120Min Summer	29.859	0.00	-1.49	
30Yr+40% 120Min Winter	29.859	0.00	-1.65	
30Yr+40% 180Min Winter	22.126	0.00	-1.17	
30Yr+40% 180Min Summer	22.126	0.00	-1.57	
30Yr+40% 240Min Summer	17.757	0.00	-1.46	
30Yr+40% 240Min Winter	17.757	0.00	-1.58	
30Yr+40% 360Min Summer	12.891	0.00	-1.53	
30Yr+40% 360Min Winter	12.891	0.00	-1.56	
30Yr+40% 480Min Summer	10.228	0.00	-1.12	
30Yr+40% 480Min Winter	10.228	0.00	-1.06	
30Yr+40% 600Min Summer	8.522	0.00	-1.50	
30Yr+40% 600Min Winter	8.522	0.00	-1.35	
30Yr+40% 720Min Summer	7.326	0.00	-1.24	
30Yr+40% 720Min Winter	7.326	0.00	-1.35	
30Yr+40% 960Min Summer	5.766	0.00	-1.05	
30Yr+40% 960Min Winter	5.766	0.00	-1.06	
30Yr+40% 1440Min Summer	4.126	0.00	-1.00	
30Yr+40% 1440Min Winter	4.126	0.00	-1.08	
100Yr+45% 15Min Summer	149.272	0.00	-3.18	
100Yr+45% 15Min Winter	149.272	0.00	-3.07	
100Yr+45% 30Min Summer	100.198	0.00	-1.95	
100Yr+45% 30Min Winter	100.198	0.00	-2.23	
100Yr+45% 60Min Summer	64.450	0.00	-1.24	
100Yr+45% 60Min Winter	64.450	0.00	-1.20	

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Item Volume Continuity Errors
100Yr+45% 120Min Summer	38.652	0.00	-0.92	
100Yr+45% 120Min Winter	38.652	0.00	-0.84	
100Yr+45% 180Min Summer	28.339	0.00	-0.93	
100Yr+45% 180Min Winter	28.339	0.00	-0.88	
100Yr+45% 240Min Summer	22.782	0.00	-1.12	
100Yr+45% 240Min Winter	22.782	0.00	-0.80	
100Yr+45% 360Min Summer	16.530	0.00	-1.00	
100Yr+45% 360Min Winter	16.530	0.00	-1.08	
100Yr+45% 480Min Summer	13.117	0.00	-0.97	
100Yr+45% 480Min Winter	13.117	0.00	-0.82	
100Yr+45% 600Min Summer	10.952	0.00	-0.80	
100Yr+45% 600Min Winter	10.952	0.00	-0.95	
100Yr+45% 720Min Summer	9.434	0.00	-0.89	
100Yr+45% 720Min Winter	9.434	0.00	-0.98	
100Yr+45% 960Min Summer	7.431	0.00	-1.16	
100Yr+45% 960Min Winter	7.431	0.00	-0.85	
100Yr+45% 1440Min Winter	5.311	0.00	-1.00	
100Yr+45% 1440Min Summer	5.311	0.00	-0.76	

Simulation Results

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

1yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	15 min Summer	8	17.099	0.024	0.853		OK
PS16	15 min Summer	9	17.024	0.027	1.050		OK
PS32-RE	15 min Summer	8	17.207	0.019	0.555		OK
PS34-RE	15 min Winter	0	17.176	0.000	0.000		OK
PS33	15 min Summer	9	17.100	0.019	0.540		OK
PS17	15 min Summer	9	16.941	0.039	1.931		OK
PS35-RE	15 min Winter	0	17.105	0.000	0.000		OK
PS10	15 min Summer	8	17.103	0.024	0.853		OK
PS11-RE	15 min Summer	8	17.383	0.011	0.303		OK
PS35	15 min Summer	9	17.077	0.028	1.123		OK
PS36-DIF	15 min Summer	8	17.064	0.026	1.992		OK
PS21-DIF	180 min Summer	109	16.934	0.084	0.985		OK
PP5-Dummy Outfall	180 min Summer	194	17.000	0.187	1.340		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
1.000	15 min Summer	8	PS15-RE	PS16	0.026	0.420	0.844	0.058	OK
1.001	15 min Summer	9	PS16	PS17	0.033	0.369	1.062	0.074	OK
2.000	15 min Summer	9	PS32-RE	PS33	0.019	0.534	0.548	0.078	OK
3.000	15 min Summer	9	PS34-RE	PS33	0.010	0.000	0.000	0.000	OK
2.001	15 min Summer	9	PS33	PS17	0.019	0.525	0.545	0.081	OK
1.002	180 min Summer	108	PS17	PS21-DIF	0.039	0.479	1.018	0.071	OK
4.000	15 min Summer	8	PS35-RE	PS10	0.012	0.000	0.000	0.000	OK
4.001	15 min Summer	8	PS10	PS35	0.026	0.404	0.842	0.058	OK
5.000	15 min Summer	8	PS11-RE	PS35	0.011	0.674	0.298	0.024	OK
4.002	15 min Summer	9	PS35	PS36-DIF	0.027	0.531	1.133	0.079	OK
4.003	180 min Summer	106	PS36-DIF	PS21-DIF	0.029	0.843	1.047	0.031	OK
1.003	240 min Summer	226	PS21-DIF	PP5-Dummy Outfall	0.109	0.460	6.124	0.424	OK

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

30yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	180 min Winter	148	17.369	0.294	0.255		Flood Risk
PS16	120 min Winter	109	17.368	0.371	0.335		Flood Risk
PS32-RE	120 min Winter	110	17.369	0.181	0.168		Flood Risk
PS34-RE	120 min Winter	106	17.369	0.192	0.000		Flood Risk
PS33	180 min Winter	146	17.369	0.288	0.161		Flood Risk
PS17	120 min Winter	109	17.368	0.467	0.596		Flood Risk
PS35-RE	120 min Winter	114	17.372	0.267	0.002		Flood Risk
PS10	120 min Winter	113	17.371	0.292	0.237		Flood Risk
PS11-RE	15 min Summer	8	17.401	0.028	2.232		OK
PS35	120 min Winter	114	17.374	0.325	0.298		Flood Risk
PS36-DIF	120 min Winter	105	17.369	0.331	0.386		Surcharged
PS21-DIF	120 min Winter	109	17.368	0.518	1.187		Surcharged
PP5-Dummy Outfall	120 min Winter	109	17.369	0.555	0.005		Flood Risk

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 Winter	22	PS15-RE	PS16	0.150	0.651	4.547	0.315	Surcharged
1.001	15 min Summer	11	PS16	PS17	0.150	0.595	7.908	0.548	Surcharged
2.000	60 min Winter	42	PS32-RE	PS33	0.100	0.758	1.981	0.281	Surcharged
3.000	360 min Summer	362	PS34-RE	PS33	0.100	0.009	0.053	0.008	Surcharged
2.001	15 min Summer	14	PS33	PS17	0.100	0.776	4.030	0.596	Surcharged
1.002	15 min Summer	9	PS17	PS21-DIF	0.150	0.906	13.559	0.940	Surcharged
4.000	480 min Winter	305	PS35-RE	PS10	0.150	0.035	0.614	0.043	Surcharged
4.001	30 min Winter	22	PS10	PS35	0.150	0.614	4.450	0.307	Surcharged
5.000	60 min Summer	33	PS11-RE	PS35	0.061	1.059	1.530	0.122	OK
4.002	30 min Winter	20	PS35	PS36-DIF	0.150	0.831	5.891	0.413	Surcharged
4.003	30 min Summer	19	PS36-DIF	PS21-DIF	0.150	1.243	12.653	0.375	Surcharged
1.003	1440 min Summer	1314	PS21-DIF	PP5-Dummy Outfall	0.150	0.491	6.154	0.426	Surcharged

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

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS15-RE	180 min Winter	150	17.547	0.472	0.314		Flood Risk
PS16	180 min Winter	158	17.546	0.548	0.437		Flood Risk
PS32-RE	180 min Winter	158	17.546	0.358	0.177		Flood Risk
PS34-RE	180 min Winter	158	17.545	0.369	0.098		Flood Risk
PS33	180 min Winter	158	17.545	0.464	0.085		Flood Risk
PS17	180 min Winter	155	17.545	0.643	0.608		Flood Risk
PS35-RE	180 min Winter	157	17.547	0.441	0.028		Flood Risk
PS10	180 min Winter	157	17.546	0.468	0.276		Flood Risk
PS11-RE	180 min Winter	157	17.546	0.173	0.098		Flood Risk
PS35	180 min Winter	157	17.549	0.500	0.284		Flood Risk
PS36-DIF	180 min Winter	154	17.545	0.507	0.344		Flood Risk
PS21-DIF	180 min Winter	154	17.545	0.695	1.450		Surcharged
PP5-Dummy Outfall	120 min Winter	114	17.545	0.732	0.017		Flood Risk

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	15 min Winter	11	PS15-RE	PS16	0.150	0.737	7.695	0.533	Surcharged
1.001	15 min Winter	9	PS16	PS17	0.150	0.600	8.602	0.596	Surcharged
2.000	30 min Winter	19	PS32-RE	PS33	0.100	0.890	3.816	0.542	Surcharged
3.000	120 min Winter	118	PS34-RE	PS33	0.100	0.019	0.152	0.023	Surcharged
2.001	15 min Winter	9	PS33	PS17	0.100	0.780	4.430	0.656	Surcharged
1.002	15 min Winter	8	PS17	PS21-DIF	0.150	0.901	14.850	1.029	Surcharged
4.000	960 min Summer	580	PS35-RE	PS10	0.150	0.037	0.658	0.046	Surcharged
4.001	15 min Winter	11	PS10	PS35	0.150	0.631	7.299	0.503	Surcharged
5.000	60 min Winter	51	PS11-RE	PS35	0.100	1.012	1.417	0.113	Surcharged
4.002	15 min Winter	10	PS35	PS36-DIF	0.150	0.808	9.659	0.677	Surcharged
4.003	15 min Winter	10	PS36-DIF	PS21-DIF	0.150	1.599	16.944	0.502	Surcharged
1.003	1440 min Winter	1390	PS21-DIF	PP5-Dummy Outfall	0.150	0.470	6.233	0.432	Surcharged