

Appendix 8.1 Hydraulic Performance of Existing Sewers

Summary of Flow Estimates

	ADWF (m ³ /d)	ADWF (m ³ /s)	Contributing Population
Discharge to FMH 4046338	10,985.8	0.1272	40,688
DWF	2,850.0	0.0330	-
Total	13,835.8	0.1601	40,688

Hydraulic Performance of Existing Sewers

Manhole				Pipe							Accumulative Population	Peaking Factor	Average Dry Weather Flow (m ³ /s)	Peak Wet Weather Flow (m ³ /s)	% Utilization by Flow	Capacity Adequacy
Upstream No.	Downstream No.	UP G.L. (mPD)	DN G.L. (mPD)	Length (m)	Dia. (mm)	Gradient (1 in)	UP I.L. (mPD)	DN I.L. (mPD)	Velocity (m/s)	Capacity (m ³ /s)						
Without DWF																
FMH4046332	FMH4046333	5.25	5.12	35.0	900	315	0.664	0.553	1.30	0.8263	26,297	4.0	0.0822	0.3287	40%	Yes
FMH4046333	FMH4046334	5.12	5.07	38.6	900	330	0.552	0.435	1.27	0.8078	26,297	4.0	0.0822	0.3287	41%	Yes
FMH4046334	FMH4046335	5.07	4.52	43.3	900	346	0.427	0.302	1.24	0.7883	26,297	4.0	0.0822	0.3287	42%	Yes
FMH4046335	FMH4046336	4.52	4.75	5.1	900	283	0.298	0.28	1.37	0.8717	26,297	4.0	0.0822	0.3287	38%	Yes
FMH4046336	FMH4046337	4.75	5.27	24.2	900	314	0.273	0.196	1.30	0.8276	40,688	4.0	0.1272	0.5086	61%	Yes
FMH4046337	FMH4046338	5.27	5.35	40.5	900	321	0.196	0.070	1.29	0.8184	40,688	4.0	0.1272	0.5086	62%	Yes
FMH4046338	FMH4046340	5.35	5.39	34.5	900	575	0.050	-0.010	0.96	0.6119	40,688	4.0	0.1272	0.5086	83%	Yes
With DWF																
FMH4046332	FMH4046333	5.25	5.12	35.0	900	315	0.664	0.553	1.30	0.8263	26,297	4.0	0.0822	0.3617	44%	Yes
FMH4046333	FMH4046334	5.12	5.07	38.6	900	330	0.552	0.435	1.27	0.8078	26,297	4.0	0.0822	0.3617	45%	Yes
FMH4046334	FMH4046335	5.07	4.52	43.3	900	346	0.427	0.302	1.24	0.7883	26,297	4.0	0.0822	0.3617	46%	Yes
FMH4046335	FMH4046336	4.52	4.75	5.1	900	283	0.298	0.28	1.37	0.8717	26,297	4.0	0.0822	0.3617	41%	Yes
FMH4046336	FMH4046337	4.75	5.27	24.2	900	314	0.273	0.196	1.30	0.8276	40,688	4.0	0.1272	0.5416	65%	Yes
FMH4046337	FMH4046338	5.27	5.35	40.5	900	321	0.196	0.070	1.29	0.8184	40,688	4.0	0.1272	0.5416	66%	Yes
FMH4046338	FMH4046340	5.35	5.39	34.5	900	575	0.050	-0.010	0.96	0.6119	40,688	4.0	0.1272	0.5416	89%	Yes

Notes:

- 1) Velocity is calculated by Colebrook-white Equation.
- 2) Pipe flows are assumed under free fall condition and hydraulic gradient equal to pipe gradient.
- 3) Pipe roughness of 6 mm (slimed concrete sewer in poor condition) is adopted.
- 4) Kinematic Viscosity = 0.0000114 m²/s
- 5) Global peaking factor with stormwater allowance is adopted as per Table T-5 of GESF.
- 6) Peaking factor is not applied to DWF
- 7) Peak Wet Weather Flow (with DWF) = ADWF* Peaking Factor + DWF
- 8) Catchment Inflow Factor (Shatin) of 1.15 is adopted from Table T-4 of GESF