Appendix F. Stormwater Management Sizing

Sixteen Mile Creek SWM Storages and Calculations

			Quantity Control Storage	Water Balance Storage	Total Storage (Quantity + Water Balance)	
Outlet	**Storage Units in Model**	**Total Controlled Impervious Area (ha)**	**Required Storage in Model (m^3)**	**Target Storage (m^3)**	**Target Storage (m^3)**	**Required Storage in Model (m^3)**
Sixteen Mile Creek	SWM 3	1.615	471.25	403.75	513.893	875
Sixteen Mile Creek	SWM 4	1.583	549.25	395.75	503.7106	945
Sixteen Mile Creek	SWM 5	1.015	196.25	253.75	322.973	450
Sixteen Mile Creek	SWM 7	4.951	472.2097088	1237.790291	1575.459483	1710
Sixteen Mile Creek	SWM 8	2.659	185.25	664.75	846.0938	850
Sixteen Mile Creek	SWM 11	1.147	350.75	286.75	364.9754	637.5
Sixteen Mile Creek	SWM 13	2.624	190	656	834.9568	846
Sixteen Mile Creek	SWM 16	3.476	330.9834588	869.0165413	1106.084254	1200
Sixteen Mile Creek	SWM 29	1.483	239.2170323	370.7829678	471.9325614	610
Sixteen Mile Creek	SWM 30	0.333	126.75	83.25	105.9606	210
			3111.91	**5221.59**		

Storage Units in Model	SWM Footprint	Required Water Balance Retention Depth (m)
SWM 3	350	1.154
SWM 4	350	1.131
SWM 5	225	1.128
SWM 7	1140	1.086
SWM 8	850	0.782
SWM 11	425	0.675
SWM 13	564	1.163
SWM 16	600	1.448
SWM 29	305	1.216
SWM 30	105	0.793

Controlled Impervious Area in the Model (ha)	20.886
Total Impervious Area within Subwatershed (ha)	42.598
Quantity Control Unitary Stoage (m^3/imp.ha)	**73.052**
Water Balance Unitary Stoage (m^3/imp.ha)	**122.58**

Morrison Creek West SWM Storages and Calculations

			Quantity Control Storage	Water Balance Storage	Total Storage (Quantity + Water Balance)	
Outlet	**Storage Units in Model**	**Total Controlled Impervious Area (ha)**	**Required Storage in Model (m^3)**	**Target Storage (m^3)**	**Target Storage (m^3)**	**Required Storage in Model (m^3)**
Morrison West	SWM 2	0.838	390.5	209.5	494.42	600
Morrison West	SWM 6	3.274	1113.461254	818.5387459	1931.75144	1932
Morrison West	SWM 9	2.095	751.25	523.75	1236.05	1275
Morrison West	SWM 10	1.590	562.5	397.5	938.1	960
Morrison West	SWM 12	2.272	773.0664196	567.9335804	1340.32325	1341
Morrison West	SWM 22	2.147	1545.689268	536.7107325	1266.637329	2082.4
Morrison West	SWM 23	0.911	312.1425	227.8575	537.7437	540
Morrison West	SWM 24	1.452	836.9204	363.0796	856.867856	1200
Morrison West	SWM25	1.582	604.515	395.485	933.3446	1000
Morrison West	SWM26	3.411	2020	852.6348845	2012.218327	2020
Morrison West	SWM27	0.665	393.75	166.25	392.35	560
Morrison West	SWM28	2.549	2910	637.299721	1504.027342	2910
			12213.8	**5696.5**		

Storage Units in Model	SWM Footprint	Required Water Balance Retention Depth (m)
SWM 2	400	0.524
SWM 6	1288	0.636
SWM 9	850	0.616
SWM 10	640	0.621
SWM 12	1341	0.424
SWM 22	1041.2	0.515
SWM 23	270	0.844
SWM 24	600	0.605
SWM 25	500	0.791
SWM 26	1010	NA
SWM 27	280	0.59375
SWM 28	1455	NA

Controlled Impervious Area in the Model (ha)	22.786
Total Impervious Area within Subwatershed (ha)	61.176
Quantity Control Unitary Stoage (m^3/imp.ha)	**199.651**
Water Balance Unitary Stoage (m^3/imp.ha)	**93.12**

Morrison Creek East SWM Storages and Calculations

			Quantity Control Storage	Water Balance Storage	Total Storage (Quantity + Water Balance)	
Outlet	**Storage Units in Model**	**Total Controlled Impervious Area (ha)**	**Required Storage in Model (m^3)**	**Target Storage (m^3)**	**Target Storage (m^3)**	**Required Storage in Model (m^3)**
Morrison East	SWM 1	2.131	789.2687541	532.7312459	1321.17349	1322
Morrison East	SWM 15	1.471	832.25	367.75	912.02	1200
Morrison East	SWM 14	1.204	599.10725	300.89275	746.21402	900
Morrison East	SWM 17	2.451	1187.25	612.75	1519.62	1800
Morrison East	SWM 18	0.870	382.5	217.5	539.4	600
Morrison East	SWM 19	0.645	838.65385	161.34615	400.138452	1000
Morrison East	SWM 20	2.758	1510.5	689.5	1709.96	2200
Morrison East	SWM 21*	10.405	5000	2601.25	6451.1	5000
			11139.5	**5483.7**		

* External Catchments draining towards Chartwell Road

Storage Units in Model	SWM Footprint	Required Water Balance Retention Depth (m)
SWM 1	661	0.806
SWM 15	600	0.613
SWM 14	450	0.669
SWM 17	900	0.681
SWM 18	300	0.725
SWM 19	500	0.323
SWM 20	1100	0.627
SWM 21	2500	NA

Controlled Impervious Area in the Model (ha)	21.935
Total Impervious Area within Subwatershed (ha)	52.606
Quantity Control Unitary Stoage (m^3/imp.ha)	**211.755**
Water Balance Unitary Stoage (m^3/imp.ha)	**104.24**

OF Name	OF Location	Existing Condition				Proposed-Uncontrolled Condition				Proposed-Controlled Condition (With 30 SWM Storages)			
		25 mm Storm	5-Yr	100-Yr		25 mm Storm	5-Yr	100-Yr		25 mm Storm	5-Yr	100-Yr	
		Peak Flow (m3/s)	Peak Flow (m3/s)	Peak Flow (m3/s)	Volume (ML)	Peak Flow (m3/s)	Peak Flow (m3/s)	Peak Flow (m3/s)	Volume (ML)	Peak Flow (m3/s)	Peak Flow (m3/s)	Peak Flow (m3/s)	Volume (ML)
OF11_54	Lyons Ln - 16 Mile Creek	0.21	0.645	1.404	8.236	0.195	0.65	1.404	8.216	0.195	0.65	1.404	8.216
108	Lyons Ln - 16 Mile Creek	0.248	0.691	1.357	1.851	0.125	0.389	0.776	1.079	0.125	0.389	0.776	1.079
91	Cross Ave - 16 Mile Creek	2.43	4.119	5.071	17.351	2.251	4.431	5.677	18.65	1.358	2.679	4.98	19.295
97	Cross Ave - 16 Mile Creek	0.046	0.085	0.135	0.415	0.038	0.088	0.148	0.383	0	0.013	0.127	0.605
10	Cross Ave - 16 Mile Creek	0.062	0.503	1.747	1.152	0.053	0.261	0.995	0.669	0.053	0.261	0.84	0.631
92	Cross Ave - 16 Mile Creek	0.069	0.348	0.711	0.795	0.058	0.344	0.757	0.83	0.013	0.169	0.477	0.379
204	Cross Ave - 16 Mile Creek	0	0	0.279	0.101	0	0	0.324	0.122	0	0	0.022	0.003
16	Cross Ave - 16 Mile Creek	0.067	0.393	0.738	0.761	0.082	0.404	0.746	0.878	0.082	0.404	0.746	0.878
217	Cornwall Rd - 16 Mile Creek	0.007	0.012	0.021	0.038	0.007	0.012	0.021	0.038	0.007	0.012	0.021	0.038
149	Cornwall Rd - 16 Mile Creek	2.392	4.079	5.193	20.944	2.221	4.054	5.202	21.569	2.026	3.925	5.095	17.046
OF2_37	Trafalgar Rd - 16 Mile Creek	0	0	0.159	0.054	0	0	0.172	0.062	0	0	0.096	0.027
Tee15_LMC	West Tributary - LMC-W	4.214	10.438	20.234	NA	3.955	9.799	17.426	NA	2.352	6.935	13.9	NA
J2353.323	West Tributary south of Maple - LMC-W	4.512	11.558	22.129	NA	4.304	10.904	19.667	NA	2.684	8.106	15.294	NA
J165	East Tributary - LMC-E	4.257	11.435	22.105	NA	4.428	11.45	21.136	NA	3.174	8.356	16.509	NA
Tee8_LMC	Main Branch west of Morrison Heights Dr - LMC	8.807	23.707	42.3	NA	8.697	23.035	39.327	NA	6.065	17.879	32.081	NA
J867.2666	Main Branch at the Confluence (Morrison Rd) - LMC	10.245	24.433	44.339	NA	9.953	23.779	41.376	NA	7.076	18.83	34.267	NA
J482.2199	Main Branch between Morrison Rd and Lakeshore Rd E - LMC	9.24	24.659	44.554	NA	9.097	23.973	41.722	NA	6.396	19.014	34.573	NA
J74.93881	Main Branch between Lakeshore Rd E and Lake Ontario - LMC	8.85	24.931	44.208	NA	8.75	24.278	41.629	NA	6.308	19.303	35.275	NA