

During the 25 mm event			
Subcatchment	Area (ha)	Runoff Volume (mm)	Runoff Volume (m ³)
West			
4010A	0.35	16.911	59.2
4010B	0.21	4.732	N/A - undeveloped
4010C	0.14	11.538	16.2
			75.3
East			
4011A	0.12	11.936	14.3 <---- to be treated in existing SWM pond
4011B	0.1	13.329	13.3 <---- to be treated in existing SWM pond

West Side of Site (Erosion Control and Supporting Quality Control)				
Infiltration Gallery (standalone or open-bottom tank)				
CVC LID Guidelines recommend the infiltration gallery be setback a minimum of 4 m from the building foundation				
V =	VR * D * A			
t =	V / (A * f)			
VR =	0.4	Void Ratio		
V =	75.3 m ³	Volume		
t =	34 hours	Drawdown time (24-48 hours required)		
f =	0.0104 m / hr	infiltration rate		
A =	213.0704 m ²			
D =	0.884 m			
	1 m Depth			
	24 hours	36 hours	38.5 hours	48 hours
A =	301.85	201.23	188.17	150.92
D =	0.62	0.94	1	1.25
Approx Area available in west playground area is at least 300 m ² . Therefore an infiltration gallery is feasible.				

East Side of Site (Erosion Control and Quality Control)									
Utilizing existing SWM facility northeast of the Waterdown Road and Hwy 403 interchange.									
Table 4.2 from the Detailed Design of Waterdown Road/Hwy 403 interchange SWM DB (Philips, Oct 2008)									
		Required	Designed	Available					
Permanent Pool		790	820	30	m ³				
Extended Detention		500	630	130	m ³				
Subcatchment	Area (ha)	Imp Area (Imp ha)	Imp %						
Existing Drainage Area to Existing SWM Pond									
	3003	1.99	0.96					48.2%	
	3004	0.4	0.28					70.1%	
	3005	2.8	1.66					59.3%	
	Combined	5.19	2.90					55.9%	
Future Drainage Area of Burlington Church									
	4011A	0.1	0.045					45.0%	
	4011B	0.12	0.045					37.5%	
	Combined	0.22	0.09					40.9%	
Future Drainage Area to Existing SWM Pond									
		5.41	2.99					55.3%	
For Wet Ponds providing enhanced T.S.S. removal (Table 3.2 - MOE Guidelines, 2003):									
Impervious %		35%	55%	70%	85%				
Storage Volume (m ³ /ha)		140	190	225	250				
Contributing Drainage Area to the Ex SWM Pond									
	Area (ha)	Imp Area (Imp ha)	Imp %	Storage Volume per area (m ³ /ha)			Storage Volume (m ³)		
				PP+ED	PP	ED	PP	ED	
Verify Existing	5.19	2.90	55.9%	192.0	152.0	40.0	789.1	207.6	
Therefore, permanent pool volume is confirmed. Extended detention likely not based on Table 3.2 of MOE Guidelines.									
Assess Future	5.41	2.99	55.3%	190.6	150.6		814.9		
During the 25 mm 4 hour Chicago Storm Event									
Future Drainage Area of Burlington Church									
Subcatchment	Area (ha)		From SWMHYMO						
			Runoff Volume (mm)				Runoff Volume (m ³)		
	4011A	0.1		11.936			11.9		
	4011B	0.12		13.329			16.0		
	Combined	0.22					27.9		
Updating Table 4.2 (Detailed Design of Waterdown Road/Hwy 403 interchange SWM DB (Philips, Oct 2008)) with inclusion of subject site									
		Required	Designed	Available					
Permanent Pool		814.9	820	5.1	m ³				<--- Water Quality for East of Site can be provided in Ex SWM Pond
Extended Detention		527.9	630	102.1	m ³				<--- Erosion Control for East of Site can be provided in Ex SWM Pond



Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	22/07/2016
Project Name	1350 Waterdown Road
Project Number	TPB163079
Location	Burlington

Designer Information

Company	Amec Foster Wheeler
Contact	M. Kuyntjes

Notes

It should be noted that the impervious area input into the model includes: asphalt and permeable pavers. Rooftop imperviousness was not included.

Drainage Area

Total Area (ha)	0.35
Imperviousness (%)	66

The Stormceptor System model STC 300 achieves the water quality objective removing 80% TSS for a Fine (organics, silts and sand) particle size distribution.

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 300	80
STC 750	86
STC 1000	86
STC 1500	87
STC 2000	90
STC 3000	91
STC 4000	93
STC 5000	93
STC 6000	95
STC 9000	96
STC 10000	96
STC 14000	97

Rainfall

Name	HAMILTON A
State	ON
ID	3194
Years of Records	1970 to 2003
Latitude	43°10'N
Longitude	79°56'W

Water Quality Objective

TSS Removal (%)	80
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Upstream Storage

Storage (ha-m)	Discharge (L/s)
0	0



Particle Size Distribution

Removing silt particles from runoff ensures that the majority of the pollutants, such as hydrocarbons and heavy metals that adhere to fine particles, are not discharged into our natural water courses. The table below lists the particle size distribution used to define the annual TSS removal.

Fine (organics, silts and sand)							
Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s	Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s
20	20	1.3	0.0004				
60	20	1.8	0.0016				
150	20	2.2	0.0108				
400	20	2.65	0.0647				
2000	20	2.65	0.2870				

Stormceptor Design Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor version 1.0
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal.
- Only the STC 300 is adaptable to function with a catch basin inlet and/or inline pipes.
- Only the Stormceptor models STC 750 to STC 6000 may accommodate multiple inlet pipes.
- Inlet and outlet invert elevation differences are as follows:

Inlet and Outlet Pipe Invert Elevations Differences

Inlet Pipe Configuration	STC 300	STC 750 to STC 6000	STC 9000 to STC 14000
Single inlet pipe	75 mm	25 mm	75 mm
Multiple inlet pipes	75 mm	75 mm	Only one inlet pipe.

- Design estimates are based on stable site conditions only, after construction is completed.
- Design estimates assume that the storm drain is not submerged during zero flows. For submerged applications, please contact your local Stormceptor representative.
- Design estimates may be modified for specific spills controls. Please contact your local Stormceptor representative for further assistance.
- For pricing inquiries or assistance, please contact Imbrium Systems Inc., 1-800-565-4801.