

**Soil & Water Conservation Society of Metro Halifax (SWCSMH)**

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To: **Regional Planning staff, HRM**

From: S. M. Mandaville Post-Grad Dip. Professional Lake Manage.  
Chairman and Scientific Director

Date: June 06, 2005

Subject: **Most stormwater treatment that HRM's several staff allude to at public hearings/meetings is only Erosion & Sediment Control, and not the more severe 'post-development stressors' (for submission at the Dartmouth High School workshop on June 06, 2005)!**

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(All our URLs are case-sensitive)

**Recommendation: Planning and Engineering staff of the HRM should not mislead the public on this! Several written reports of various staff did indeed claim that HRM would insist on stormwater treatment whereas in reality they are mostly Erosion & Sediment Control only!**

**There are no proven total stormwater treatment systems anywhere within the urban or suburban areas of HRM; we have indeed observed several of the major systems claimed or implied to be *panacea* by staff at public hearings and/or meetings.**

**Rationale:**

[I] The stressors (or pollutants) entering our sensitive waterways post-development are varied and multifaceted. The pollutants are generated after occupation of the watershed by *homo sapiens*.

Examples of the type of stressors that can be expected even in typical urban areas are listed in our web page with the URL of <http://lakes.chebucto.org/SWT/pollutants.html>

**"Laser particle sizing has also indicated that a considerable proportion of the particulates in road runoff are less than 10  $\mu\text{m}$  (microns). This size fraction is difficult to capture in current stormwater pollution control devices and has been shown to contain significant quantities of heavy metals, which are of concern in aquatic ecosystems."** (cf. Drapper, D., Tomlinson, R., and Williams, P. An Investigation of the Quality of Stormwater Runoff From Road Pavements; A South-East Queensland Case Study. School of Environmental Engineering, Griffith University, Nathan Campus, Queensland, Australia. 8p.)

[II] We herewith cite three tables from a study conducted for several Government agencies in Florida by a multi-disciplinary firm (cf. Herr, J.L., and Harper, H.H. Removal of Gross Pollutants From Stormwater Runoff Using Liquid/Solid Separation Structures. Environmental Research & Design, Inc., Orlando, FL. 14p.):--

Comparison of Estimated Removal Efficiencies			
Structure	Removal Efficiencies %		
	Litter	Debris	Sediments
<u>Vortechs System</u>	?(10-50)	?(10-50)	60-80
<u>Stormceptor</u>	?(10-50)	?(10-50)	60-80
<u>CDS</u>	98	98	?(10-50)
<u>Baffle Box</u>	?(10-50)	?(10-50)	60-80

"The removal of sediments from stormwater runoff using liquid/solids separation structures will remove a portion of the particulate fraction of various pollutants contained in runoff which attach to sediment

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particles. A typical distribution of dissolved and particulate pollutant runoff fractions for residential runoff is provided in the following table:-

Parameter	Typical Distribution (%)	
	Dissolved	Particulate
Total N	40	60
Total P	50	50
TSS	0	100
BOD	60	40
Total Cd	70	30
Total Cr	65	35
Total Cu	70	30
Total Ni	70	30
Total Pb	25	75
Total Zn	35	65

"However, particulate matter contributing to loadings of nutrients and heavy metals in stormwater runoff is typically 500-100  $\mu\text{m}$  or smaller. The removal efficiencies for particles of this size range from 20-70%, with lower removals at smaller particle sizes."

<b>Estimated Net Mass Reduction in Stormwater Constituents Achieved Based on 70% TSS Removal</b>	
<b>Parameter</b>	<b>Estimated Annual Mass Load Reduction (%)</b>
<b>Total N</b>	<b>30</b>
<b>Total P</b>	<b>25</b>
<b>TSS</b>	<b>70</b>
<b>BOD</b>	<b>20</b>
<b>Cadmium</b>	<b>15</b>
<b>Chromium</b>	<b>18</b>
<b>Copper</b>	<b>15</b>
<b>Lead</b>	<b>38</b>
<b>Nickel</b>	<b>15</b>
<b>Zinc</b>	<b>33</b>

[III] Further, as recent as year-2005, staff (e.g., Mr. Paul Morgan) stated and/or cited some large local consultants as claiming that in-situ systems, e.g., CDS, Stormceptor, or similar devices, are allegedly capable of removing most pollutants (e.g., during the Morris-Russell Lakes Secondary Planning Strategy hearing at Regional Council). That is without basis!