



## STORM BULLETIN 11

# SIZING OF THE V2B1 STORMWATER TREATMENT SYSTEM

- **Preliminary sizing of the V2B1** is based on a sizing guideline which specifies treatment of a rainfall event with intensity of 0.80"/hr (0.70 ft<sup>3</sup>/sec/impervious acre). This event is adequate enough to generate one-half inch of runoff from the impervious area. A sedimentation removal system should provide 10-15 ft<sup>2</sup> of net sedimentation area per impervious acre. These guidelines are presumed to provide 80% removal of fine sand and coarser sediment.
- **Sediment size distribution and concentration** in the runoff can vary widely, depending on the interval between storms, the amount of rainfall in these storms, and the local soil properties. The guideline above can be adjusted as required to meet site-specific requirements.
- **Preliminary sizing of the V2B1**, based on the guideline above, is summarized below :

Impervious Area, acres	V2B1 Model	Peak flow rate associated		Typical 10-YR Design Storm Flow Rate, ft <sup>3</sup> /sec
		<u>with first 0.5 inch runoff</u> ft <sup>3</sup> /sec	gpm	
0.3-1.3	3	0.2-0.9	90-360	1-4
1.3-2.0	4	0.9-1.4	370-560	4-7
2.0-3.0	6	1.4-2.1	570-750	7-10
3.0-4.0	9	2.1-2.8	760-1070	10-13
4.0-5.3	11	2.8-3.7	1080-1350	13-18
5.3-8.3	17	3.7-5.8	1360-2250	18-28
8.3-11.7	25	5.8-8.0	2260-3140	28-38

- **NOTE:** the typical 10-yr design storm flow rate is based on a site with 75-85% impervious area. Final sizing is provided by the Environment 21 Engineering Department, and is based on analysis of the operating hydraulics of the downstream piping, the V2B1 internal piping, and the associated impacts on particle removal efficiency and prevention of re-suspension of collected sediment.