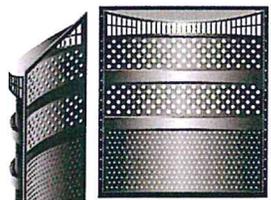
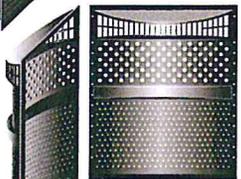


## Underground Storm Water Storage

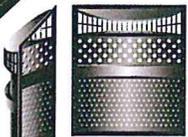
Trash Guard, Inc. redesigned our product for underground storage systems and named it Trash Guard Plus. Rather than open orifices at the top for conventional catch basins, we designed it to stop large floatables, such as Plastic Bags, from entering the storage facility through the large orifices. Floatables large enough to pass through the conventional orifices could clog the entrance to the underground storage facility causing water back ups. Removal from the entrance to the storage facility could be much more expensive, and time consuming, than removing it from the Trash Guard Protected catch basin.



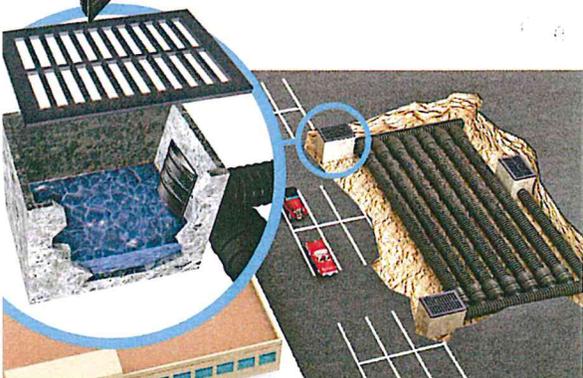
Trash Guard®  
Insert 34"



Trash Guard®  
Insert 28"



Trash Guard®  
Insert 23"



*Manufacturer*

P.O. Box 10  
Roseboro, NC 28382  
866-520-4362  
Fax: 910-525-9950  
Email: trashguard@att.net

[www.trash-guard.com](http://www.trash-guard.com)



*National Distributor*

2831 Cardwell Road  
Richmond, VA 28234  
800-448-3636  
Fax: 804-743-5535

Email: [dkelley@acfenvironmental.com](mailto:dkelley@acfenvironmental.com)

[www.acfenvironmental.com](http://www.acfenvironmental.com)

## Why Install a Trash Guard insert

Trash Guard® stormwater devices have been installed at several monitored locations in North Carolina. All of the areas selected collect stormwater from moderately large commercial/industrial areas or residential areas with significant vegetative cover in the watershed. The Trash Guard device is intended to trap and screen solid materials generated during storm events. Once trapped, the solids assist in filtration of solids in the catch basin. Solids trapped by the device provide a tortuous path through which liquid must flow and sites where solid materials and materials associated with the trapped solids remain in the catch-basin. Initially, no materials are trapped and the retention is low, as the volume of trapped solids increase, retention and filtration improve. Materials trapped in the basin include: sand, trash and a mix of leaf litter, small twigs and stems and grass. These materials contain organic matter, nutrients, petroleum products and regulated metals - all of which adversely impact water quality.

Samples of the water entering the Trash Guard device and exiting the device were collected and analyzed following significant storm events. The samples were assessed to determine concentrations of a suite of water quality parameters. The testing program is conducted under direction of A. R. Rubin, Professor Emeritus at North Carolina State University.

The effectiveness of Trash Guard inserts have been tested at locations throughout North Carolina. The devices have removed over 2000 pounds of stormwater solids at one facility and over 1000 pounds at other sites annually. Analysis of these retained solids show significant levels of nutrients and regulated pollutants retained by the device. These solids were previously discharged into adjacent surface waters adding pollutants to surface water bodies. In areas where surface waters are impaired and listed on state water quality reports, the installation and management of Trash Guard devices will result in significant removal of pollutants. The effectiveness of the Trash Guard was assessed by comparing water entering and exiting the test catch basins. Trash Guard devices removed measurable levels of both suspended and soluble pollutants from stormwater and concentrations of pollutants discharged were reduced. All sites were Post Construction sites stabilized for the intended site use.

The total weight of the solids removed annually and nutrient and selected regulated metal levels removed (as concentration and equivalent pounds per ton) from selected Post Construction Sites are presented in Table A Below.

**Weights & Solids – Table A**

Site	Pounds Removed	TN		TP		TOC	
		mg/kg	lb/t	mg/kg	lb/t	mg/kg	lb/t
Industrial	2,100	900	2	164	0.3	26,200	53
Office Bldg	1,200	5,060	10	920	2	44,520	156
Residential Lawns, Trees/ Light Traffic	800	6,850	14	565	1	195,440	390
Residential Lawns, Trees/ Heavy Traffic	1,600	7,600	15	750	1.5	134,200	268

\*Actual Field Test Results

**Influent & Effluent Concentrations – Table B**

Site	TS mg/kg	TN mg/kg	TP mg/kg	TOC mg/kg
Industrial raw	248	3.1	.8	122
Industrial discharge	55	1.4	.3	30
Removal	78%	55%	63%	75%
Residential raw	200	4.1	.7	20
Residential discharge	44	2.0	.3	8
Removal	78%	51%	57%	60%

\*Actual Field Test Results

Testing is currently underway assessing the water quality entering and exiting a basin equipped with a Trash Guard device at several facilities. Selected water quality test results from the water quality monitoring are presented in table B above as concentration in incoming or raw stormwater, the discharged stormwater from a mature Trash Guard, the percent removal. These are concentration values only. The nitrogen and phosphorus removed are soluble in the water while the TOC or total organic carbon and the TS or total solids contain both soluble and insoluble components.

In addition to the nutrients, regulated metals, and other organic carbons captured, Trash Guard captures 100% of floatables such as: Styrofoam, Aluminum, Plastic and Paper Products. These discarded products are unsightly trash, but amount to a small part of total weight.

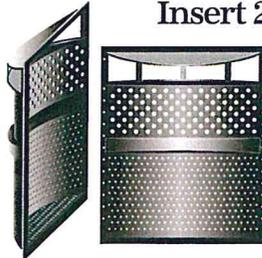
### Trash Guard® Insert 23"



Dimensions:  
23" Wide  
26½" Tall  
Concrete Outlet  
Pipes Covered  
15" and less

\* patent #7276156

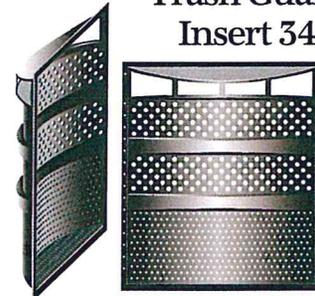
### Trash Guard® Insert 28"



Dimensions:  
28" Wide  
32 ½" Tall  
Concrete Outlet  
Pipes Covered  
18" and less

\* patent #7276156

### Trash Guard® Insert 34"



Dimensions:  
34" Wide  
38 ½" Tall  
Concrete Outlet  
Pipes Covered  
24" and less