

FABCO INDUSTRIES, INC
STORMWATER NUTRIENTS: P & N
TEST PROGRAM



Executive Summary

Under a contract between a local municipality and Fabco Industries, Inc, Bohemia, NY, from October 2006 to December 2007 a series of field tests were conducted on the Fabco StormBasin and StormPod catch basin inserts to evaluate their effectiveness in reducing phosphorus and nitrogen compounds in stormwater runoff. The testing took place at 3 different sites and involved 5 different filter cartridge configurations.

The testing protocol called for testing under realistic field conditions; all test units were installed into existing roadside storm drains, only minimal maintenance was performed during a test sequence and the same filtering cartridge was used from start to finish better simulating expected results. All samples of treated and untreated stormwater were collected during the first 15 minutes – “first flush” of a rain event. Many published studies (example: First Flush Phenomenon, CalTrans, Aug 2005) have concluded that first flush runoff water contains the highest expected concentrations of pollutants during a storm event.

The data presented in the report confirms that the Fabco StormBasin and StormPod units were highly effective in reducing both phosphorus and nitrogen compounds. Specifically:

- Total phosphates were reduced an average 66% - exceeding the 40% required by many states including: New York, Maryland, Virginia and New Jersey.
- Total nitrogen compounds were reduced an average 44%

Additionally, although not required by the study, the report contains information on the type and quantity of solid debris; sediments, trash, leaves, sticks and other material that were collected in the units between tests. Using a separate laboratory analysis on this type of debris, the report concludes significant concentrations of nutrients maybe stored in this captured material that is not included in the reported reductions.

Analysis of untreated raw samples from the three sites confirmed that nutrient values in nearly every case, exceeded the National Median Concentrations as indicated in Chapter 2, pg 2-3 in the New York State Stormwater design manual.

Table 1: Nutrient concentrations at 3 test sites

	mg/l	Nat'l Median	Site 1	% > median	Site 3	% > median	Site 2	% > median
Tot. Kjeldahl N.		1.47	7.40	403%	5.73	290%	4.60	212.93%
Nitrate as N		0.53	1.15	117%	1.06	100%	0.50	-5.66%
Nitrogen, total as N		2.00	8.55	328%	6.67	233%	4.60	130.00%
Ortho Phosphate as P		0.10	0.03	-75%	0.94	836%	0.50	400.00%
Tot. Phosphate as P		0.26	0.16	-40%	1.22	369%	0.78	200.00%

Test results on samples obtained from site 3 confirmed that the Fabco Industries StormBasin and FabPhos-AM reduced nutrients in stormwater down below the median national average. **The 66% reduction in Total Phosphorous comfortably exceeds typical State requirements of 40%.**

Table 2: Final results - Average of 3 events at site 3

Average of 3 events	Units	Unfiltered	Filtered	% Reduction	Nat'l Median
Tot. Kjeldahl N.	mg/l	2.53	1.33	42.84%	1.47
Nitrate as N		0.96	0.49	38.33%	0.53
Nitrogen, total as N		3.33	1.67	43.91%	2.00
Ortho Phosphate as P		0.99	0.17	79.55%	0.10
Tot. Phosphate as P		1.00	0.24	66.26%	0.26

It is important to realize that the reductions above do not include a contribution from nutrients attached to sediments and/or bound to organic matter that were captured and stored in the StormBasin/StormPod collection tub. Maintenance records maintained during the project recorded over 750 pound of trash, debris and sediments being removed from site 1 annually, over 1100lbs from site 2 and over 950lbs from site 3.