

CATCH BASIN RETROFIT PROPOSAL

To: Hempstead Harbor Protection Committee

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Catch Basin Retrofit Proposal

HEMPSTEAD HARBOR PROTECTION COMMITTEE CATCH BASIN RETROFIT PROJECT

PROBLEM BACKGROUND

Storm drains are a major source of pollution found within watersheds. This is because storm drains are inlets for Nonpoint Source (NPS) Pollution. NPS pollution is caused by rainfall or snow melt moving over and through the ground. As the runoff moves, it picks up pollutants such as hydrocarbons, pesticides, fertilizers, sediment, trash and debris. This ultimately results in the NPS pollutants entering storm drains thus polluting the water sheds.

In the case of Hempstead Harbor, NPS pollution has been a major contributor to the pollution found in the harbor.

PURPOSE/SCOPE

A major problem found in the Hempstead Harbor watershed is high levels of NPS pollution. One method to combat this problem is installing storm drain retrofits which will remove a majority of the pollutants before they enter the harbor. Before the installation of the storm drain retrofits is performed throughout the watershed, a test will be conducted with five different models to see which unit performs the best.

RECOMENDED RETROFITS

The following are the five models that were chosen for proposal to the Hempstead Harbor Protection Committee. Information on each model was obtained through direct contact with the manufacturers as well from other municipalities that have used and tested them. Data was also obtained from independent testing companies.

Enviro-Drain

The Enviro-Drain is a stainless steel insert designed to be inserted into catch basins. It consists of one, two or three trays with each tray targeting a different pollutant. The first (top) tray targets sediments, cigarette butts, rocks, leaves, and grass clippings. The second is filled with Absorbant W, a natural cellulose fiber that can retain up to seven times its weight in oil. The third tray can also be filled with Absorbant W for high pollution areas or with activated carbon to neutralize fertilizers and pesticides.

Each tray has its own characteristics and is properly spaced to eliminate clogging while providing aeration to the water which is needed to break down organic compounds and provide fish with adequate oxygen. With the ability to select trays, it is easy to have a system to remove the targeted pollutants.

Applications:

- Parking Lots

- Gas Stations
- Golf Courses
- Streets
- Driveways
- Industrial facilities
- Municipalities

Features:

- Anti-clogging design
- Recyclable filters
- Environmentally safe filters
- Absorbs oil and gas in water
- Neutralizes sediments/pesticides
- Eliminates sediments
- Sampling capabilities (NPDES)
- Prefilter to oil/water operations
- 100% stainless steel construction

Cost:

Table 1: Suggested Retail (per unit)

Grate Sizes	9' Depth 1 Tray	11' Depth 2 Tray	15' Depth 3 Tray
12' x 12'	\$500.00	\$1,000.00	\$1,200.00
18' x 18'	\$600.00	\$1,200.00	\$1,500.00
18' x 24'	\$600.00	\$1,200.00	\$1,800.00
18' x 36'	\$900.00	\$1,600.00	\$2,000.00
20' x 24'	\$700.00	\$1,300.00	\$1,900.00
24' x 24'	\$900.00	\$1,500.00	\$2,000.00
24' x 36'	\$1,200.00	\$2,000.00	\$2,500.00
24' x 48'	\$1,500.00	\$2,500.00	\$3,200.00

Maintenance:

- Maintenance activities can be done largely with the use of manpower.

Test Results:

Waiting to receive them from the company.

Testimonials:

"They work very well. I would recommend them to anyone on the river who has critical exposure issues, particularly for properties without storm water detention facilities. The Enviro-Drain provides a measure of protection against pollutant release that is cheap and effective."

"Everyone should have a system like this, especially on a waterway."

Steve
Environmental Manager - Kenworth Truck Assembly Plant, Seattle, WA

Alm-Plouff

"We're putting them in high-traffic areas. It's the only product on the market that allows three levels of filtration mediums. You don't have to constantly change that first level."

Dick
Facilities Manager - Food Services of America Distribution Center, Kent, WA

Peltzer

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Ultra-Urban Filter

The Ultra-Urban Filter® is an innovative low-cost BMP that helps meet NPDES requirements with effective filtration, efficient application, and moderate maintenance. The Ultra-Urban® Filter captures oil and grease, trash and sediment from storm water runoff before it enters the storm drain system. The Ultra-Urban® Filter is ideal for municipal, industrial, and construction applications. The Ultra-Urban® Filter is designed for use in storm drains that experience oil and grease pollution accompanied by sediment and debris. Trash and sediment accumulate in the upper basket chamber while oil and grease is captured in the filtration media. Field tests have proven that the proprietary Smart Sponge® filtration media will remove an average of 95% of the oil and grease in storm water runoff - from low concentrations typical of residential areas to high levels associated with illegal dumping of used motor oil. The oil will permanently bond within the Smart Sponge® and become permanently encapsulated eliminating the possibilities of leaching or leaking back into the environment.

Applications:

- Retrofitting existing developments
- Pretreatment in new or existing developments
- Use in high-use (oil) designated areas
- City streets, vehicle and truck parking lots, construction sites

Features:

- Removes oil, grease, trash, sediment and debris

- Modular Design accommodates most storm drains
- Smart Sponge media removes up to 95% of oil and grease in storm water runoff
- The only true structural catch basin insert filter
- Lightweight and easy to handle
- Quick installation, easy to maintain, can be serviced from street level
- Cost effective BMP
- Filter housing made from recycled content plastic
- Recyclable through WTE

Installation:

The Ultra-Urban Filter is easily installed. Installation time varies depending upon mounting devices selected. A single mounting bracket made of 16-gauge galvanized steel is required for the installation of the Curb Opening (CO) series. The Ultra-Urban Filter should not be installed where modules obstruct the drain pipe outlet. The size of the drain should allow room for storm water overflow. The Drain Inlet (DI) series Ultra-Urban Filter will suspend from the drain into the catch basin through a structural plastic mount and funnel mechanism (see drawings).

Cost:

The initial cost of a typical unit (DI1420) is \$550 when purchased in single units. Replacement cost is \$450. If replaced every two years, annualized cost is \$250. The cost to remove accumulated sediment depends upon the area being treated and specific site conditions. Generalizations therefore cannot be provided.

Maintenance:

The Ultra-Urban Filter should be serviced as needed to remove sediment and debris, according to expected debris accumulation. The sediment and debris can be quickly vacuumed out of the modules through the opening of the drain with conventional maintenance equipment. For example, a curb inlet with Ultra-Urban Filter modules can be typically serviced in 10 minutes or less. Under normal operating conditions the Ultra-Urban Filter should be replaced every 1-3 years.

Test Results:

Provided by manufacturer.

Testimonials:

Conclusion:

The Ultra-Urban Filter is a device that targets Petroleum hydrocarbons, debris, and suspended solids. The installation of the unit is described as a “simple installation” and “easily serviced”. This would work well for a municipality which would have to install and maintain a large number of units. The servicing would consist of removing the debris (about twice a year depending on location) and replacing the filter (every 1-3 years depending upon the amount of pollutants).

The company has provided favorable test results from outside agents and have been very helpful and easy to work with while trying to obtain information and data dealing with their products. This is why we are recommending this unit for testing within the Town of Oyster Bay.

Contact:

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Flo-Gard™ +Plus

The Flo-Gard™ +Plus is the most modern version of the Flo-Gard™ line. Its filter body consists of geotextile monofilament, an HDPE adapter was added to it in order to better direct water flows entering the insert. This model is easier to install and it has a high flow bypass capability which make it very popular. This insert is recommended for areas with moderate levels of petroleum hydrocarbons and with high levels of sediment and debris. Flo-Gard™ +Plus inserts are available in sizes to fit most industry-standard drainage inlets.

Applications:

- Parking Lots
- Aircraft Ramps
- Truck and Bus Storage Yards
- Corporation Yards
- Subdivision Streets and Public Streets

Features:

- Captures sediment, debris, trash and oil/grease
- Allows sustained maximum design flows under extreme conditions
- Provides isolation of trapped pollutants
- Minimizes resuspension and loss of pollutants during peak flow events

- Woven geotextile fabric liner with maximum opening size of 40 mesh
- Captures hydrocarbons
- 25-year service life
- Allows complete inspection and cleaning in the field

Installation:

The installation method depends on whether the device is to be wall or frame mounted. The wall mount installation consists of installing stainless steel brackets on two walls of the catch basin and resting the filter's material support brackets on the mounting brackets. The frame mount filter is installed by merely resting the filter's support brackets on the grate bearing ledge.

Costs:

The installation costs are approximately \$500 to \$700 per unit. In addition the manufacturer recommends that each installation be serviced three times a year, with a change of filter medium once per year.

Note: Waiting to receive a better estimate from the company.

Maintenance:

The frequency of service depends on the amount of runoff pollutant loading and interference from debris. However the company recommends servicing a minimum of three times per year with a filter medium change once per year.

- For areas with definite rainy season: Prior to, during and following the rainy season
- For areas subject to year round rainfall: On a recurring basis
- For areas with winter snow and summer rain: Prior to and just after the snow season and during summer rain season
- For installed devices not subject to the elements: On a recurring basis

The service procedure is described in the appendices.

Test results:

The two inserts tested were standard units and were modified only to allow them to be accurately positioned in the simulated catch basin. This required the end brackets to be modified to allow attachment. The pollutant removal parts of the inserts (e.g., sorbent pouches, screens) were not modified. The FloGard™ insert measured 35 inches long by 22 inches wide and was open in the middle. The opening was 27 inches long and 15 inches wide. The area between the opening and the outside dimensions is a trough of screen and contained 6 pouches or “sausages” of sorbent. The

opening is provided to allow high flows to bypass. The sorbent pouches can be replaced in both models without removing the insert. The FloGard™ high capacity insert was 35 inches long by 17 inches deep. The central section is fully enclosed and forms a bag that retains litter and debris. The internal dimensions are 32 long by 12 inches wide, and the bag is 28 inches deep. Sorbent pouches (12) are one was screen, just like the walls, while the other was non-woven polypropylene. Manufacturer's literature should be consulted for more precise information.

More information about testing procedures can be found in the appendices.

Contacts:

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Aqua-Guard Storm Water Catch Basin Insert

The Aqua-Guard insert is fabricated using high density polyethylene and stainless steel which ensures its durability, it is made of 100% reclaimed materials. It is lightweight and can be easily maintained without any lifting equipment. This insert removes coarse sediment, trash/debris, pollutants such as dissolved oil, nutrients and metal. The Aqua-Guard insert is custom designed to fit most catch basin. It includes a sediment collection, storage area and a filter media contained in an easy to remove filter bag. It removes 90% to 95% of dissolved petroleum and oils.

Applications:

- Retail/commercial Developments
- New and Existing industrial Facilities
- Highway/Transportation Facilities
- Redevelopment/Retrofit Sites

- Government Facilities
- Military Installations, Bases And birthing Wharfs
- Vehicle and equipment Wash Rack Areas
- Fueling Centers And Convenience Stores
- Fast Food Restaurants
- Office Complexes

Features:

- Pre-treats water with collection/storage area
- Removes dissolved oil, nutrients and certain metals
- Contains overflow holes for flow that exceed filter's capacity
- Removes coarse sediment
- Removes 9 of dissolved petroleum and oils
- Does not require pre-treatment
- Removes Phosphorus and Nitrogen, VOCs, PCBs, sulfides and heavy metals

Installation:

Due to the lightweight of the insert on site installation is made easy. For more details the manufacturer has to be contacted.

Costs:

Because this filter is custom engineered for specific site, and manufactured to match client's exact specifications a price schedule is not given. It is estimated that capital costs approximately ranges from \$1,200 and \$1,950 depending upon unit size and annual operation and maintenance costs are approximately \$320.

Contact :

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