Stormwater BMP Products

Stormwater Catch Basin Filters

- **Storm Water BMP (Best Management Practices)**
- **Effective Nonpoint Source Pollution Prevention**
- **Long-Standing Remediation**
- **No Modification of Existing Structure**

Providing ***ADSORB-it*** **Catch Basin Filters** that are designed to fully adsorb and capture petroleum hydrocarbons, and other typical pollutants that flow into storm drains, catch basins, sumps and oil-water separators. As polluted storm water flows into a storm drain, the ***ADSORB-it*** **Catch Basin Filter** fully traps petroleum hydrocarbons, sediments, and suspended solids without inhibiting water flow into the drains and basins.

The ***ADSORB-it*** **Catch Basin Filter** has the ***ADSORB-it*** **Filter Fabric Liner** packaged in a hi-strength stainless steel frame attached to a heavy-duty PVC coated wire screen basket that allows storm water to flow through the filter for extended periods, allowing storm water to be filtered while capturing pollutants.

The ***ADSORB-it*** **Catch Basin Filter** rugged construction is tough enough to withstand turbulent water flows and heavy sediment impacts and is secured by the frame under the grate of the catch basin, so it will not impede the flow into drainage piping or end up at the bottom of the storm water structure.

Installing the ***ADSORB-it*** **Catch Basin Filter** is a simple process requiring no structural modifications to existing storm drains or catch basin structures.

ADSORB-it **Catch Basin Filters** are available in many sizes and are manufactured to fit any type of Drainage Structure at varying depths, from the standard 18”x24” and 20”x24” Type I catch basins, to Round 24” & 30” Dry Well Structures, and even larger 24”x48” Drainage Structures.

STORM WATER TREATMENT CAPACITY

ADSORB-it **Catch Basin Filter** - *Filtration, Adsorption, Retention*

As polluted storm water flows through the ***ADSORB-it*** **Catch Basin Filter**, the filtration material allows the unrestricted flow of water in excess of 100 gallons per minute per square foot while adsorbing oils, oily sheen and oil-borne pollutants as well as filtering suspended solids down to 50.0 microns.

When maintained properly, the ***ADSORB-it*** **Catch Basin Filter** provides for an effective contaminant load removal from storm water discharges without inhibiting the drainage outflow.

ADSORB-it **Catch Basin Filters** have successfully been used at the following facilities:

- Industrial Storm Drainage Systems
- Auto Salvage Wrecking Yards
- Retail/Commercial Storm Drains
- Grocery Store Lot/Loading Dock Drains
- Ship Container Docks/Ports/Marinas
- Petro-Chemical Facilities
- Cardlock Truck Fueling Stations
- Timber Production/Log Yard Drains

*FOG = Fats, Oils and Greases

Storm Water Contaminant Load Removal

Based on laboratory analysis, the following is a list of common pollutants found in storm water runoff that the ***ADSORB-it*** **Catch Basin Filters** have successfully captured:

- Petroleum Sheen Runoff (leaking automobiles, equipment)
- Heavy Petroleum Oil & Grease Impacts (petroleum plants, spills)
- Fats, Oils & Greases (FOG) (fast food restaurants)
- Decaying Organic Matter (vegetation, landscape areas)
- Heavy Sediments, Sands & Silts (streets, parking lots, landscape debris)
- Suspended Solids, Silts & Particulates (parking lots, landscape debris)
- Fly Ash (industrial facilities, cement manufacturing)
- Nitrates & Nitrites (lawn fertilizing)
- Heavy Metals: zinc, copper, lead (engine oils, coolants, exhaust, tires, brakes)

NOTE: Historical data has shown that the ***ADSORB-it*** **Catch Basin Filters** have significantly lowered point and non-point polluted storm water discharges.

ADSORB-it Filtration Fabric

Incorporated into the design of our ***ADSORB-it*** **Catch Basin Filter** is the ***ADSORB-it*** **Filter Fabric** Material, manufactured here in the *Pacific Northwest* from recycled textile fibers, that effectively removes petroleum hydrocarbons, fats, oils, and grease (FOG), sediments and suspended solids without inhibiting the flow of storm water discharges.

When addressing the removal of total suspended solids (TSS) and the fine particulates that cause turbidity, we incorporate the ***ADSORB-it*** **Filter Fabric** into our ***ADSORB-it*** **Catch Basin Filters** that effectively reduces TSS, turbidity and soluble/insoluble metal concentrations such as zinc, copper, and lead.

Additional applications that the ***ADSORB-it*** **Filter Fabric** material is suited for are silt fences and contour ditch booms for erosion control; bio-swales and shoreline protection; pipe socks for utility vault dewatering; sock filters for filtering pollutants from storm system discharge pipes, filter booms for drainage ditches and channels and baffle curtains for enhancing filtration in sumps and oil-water separators.

ADSORB-it ***Filtration Fabric:***

High adsorption capacity for removing petroleum hydrocarbons, fats, oils, and grease (FOG), heavy sediments, total suspended solids (TSS down to 50 microns) and insoluble heavy metals.

*Adsorbs 30-times its own weight in saturated oils.
*Estimated flow rate: 151-gal/min/ft.2.

Stormwater Treatment with Biochar Media

Stormwater Biochar Filter Media is an affordable, natural organic carbon neutral Bio-Char media that is a relatively new treatment technology used in the removal of most pollutants found in storm water discharges. Bio-Char filter media is made from a specialized organic media that filters stormwater naturally.

Utilizing Carbon Lock™ Technology, this university tested technology uses Biochar as its basis for locking heavy metals onto the filter media. Small and soluble heavy metals are attracted to the polarity of Biochar and attach to surface areas through both absorption and adsorption.

The Biochar media serves as an ionic exchange medium to enhance the treatment process that effectively reduces:

- Sediments/Fine Particulates
- Total Suspended Solids (TSS)
- Turbidity (NTU's)
- Chemicals (Nitrates, Etc.)
- Heavy-Metals (Zinc, Copper, Lead)
- Oil & Gas (Petrochemicals)

Stormwater Biochar Filter Media has shown to adsorb both organic pollutants and heavy/trace metals within its porous structure. In addition, the presence of oxygen rich organic compounds on the **Biochar** surfaces adds substantial cation exchange capacity which aides in the capturing of contaminants such as Zinc, Copper, Lead and Aluminum.

Stormwater Biochar Filter Media has undergone extensive Field & University testing and has shown a 95% reduction of total Aluminum and Zinc, and up to a 99% reduction of Cadmium, Chromium, Copper, Lead, and Iron.

Stormwater Biochar Filter Media has been used in many applications such as catch basin filters, roof downspout filters, treatment bed filters, filter socks/pillows and filter booms used in channels, ditches, and bio-swales.

The **Biochar** is universally applicable to all manufacturer's systems and is highly adaptable to custom configurations.

Removal Capacities of Biochar Media

When calculating treatment or removal rates of **Biochar**, one pound of **Biochar** media will effectively adsorb/absorb 25% of its own weight. When calculating the 25% removal capacity of pollutants using **Biochar**, there are 3 processes: Adsorption, Absorption & Physical Filtration.

The process of **Adsorption** of the **Biochar** in which the physical adsorption of atoms, ions, or molecules from a substance (it could be gas, liquid or dissolved solid) adhere to the surface of the **Biochar**. The **Absorption** process of the **Biochar** occurs when the saturation bonding of substances (such as hydrocarbons) are absorbed within the porous structure of the **Biochar**.

Biochar has a negative charge of **3-** which is similar to Activated Carbon, but **Biochar** has a much larger surface retention area for adsorption/absorption. The Adsorption capabilities of **Biochar** to Adsorb/Absorb and remove contaminants from stormwater runoff are measured by its **Cation-Exchange Capacity** (**CEC**) which is a measure of how many **Cations** can be retained on the **Biochar** particle surfaces.

Negative charges on the surfaces of the **Biochar** particles bind positively charged atoms or molecules (cations) but allow these to exchange with other positively charged particles such as metals and other pollutants in the surrounding water.

Cation-exchange capacity arises from various negative charges on the **Biochar** particle surfaces. **Cations** are adsorbed by the electrostatic interaction between the positive charge of pollutants and the negative charge of **Biochar** surfaces. **Zinc** has a positive charge of **2+**, **Copper** has a positive charge of **1+** and **Iron** has a positive charge of **3+** so the **Biochar** media works very well at removing those metal contaminants.

The process of **Physical Filtration** of the **Biochar** is when particulates and suspended solids will be trapped between the voids. The sediment holding capacity for **Biochar** is quite large and due to its highly porous structure, and is much less dense than sand, therefore a greater amount of solids and suspended solids are trapped between the micro and mesopores.

The porous structure of **Biochar** also causes colloid particles from both organic and mineral origin to be removed from water. The capacity for the removal of solid particles is up to 50% greater than the capacity of sand with an equivalent particle size distribution. For example: TSS would be virtually removed by physical filtration and the adsorption process by the **Biochar**.

The ***ADSORB-it*** **Filter Fabric** has a much higher flow rating than the **Biochar** Media, so we typically estimate the flow rates based on the cubic feet capacity in each of the Catch Basin filters to hold the **Biochar**. One cubic foot of **Biochar =** 25-gpm of flow rate. Typically, the lower the flow rate, the more effective the **Biochar** is at removal rates; however, historically the **Biochar** has shown to be effective at grabbing contaminants at even the higher flow rates.

		Average Test Results				
STORMWATER TREATMENT CATCH BASIN Inserts	BiocharBASIC Stormwater Treatment Filtration Media	**Before** Treatment Installation		**After** Treatment Installation		% Reduced
Marine Industrial	Copper	21.24	µg/L	8.45	µg/L	60.22%
	Zinc	152.74	µg/L	33.5	µg/L	78.07%
CB1						
Pallet Repair Facility	Copper	27.9	µg/L	7.35	µg/L	73.66%
	Zinc	125	µg/L	7.4	µg/L	94.08%
CB1	COD	179.5	mg/L	33	mg/L	81.62%
Pallet Repair Facility	Copper	62.475	µg/L	8.15	µg/L	86.95%
	Zinc	521	µg/L	61.5	µg/L	88.20%
CB2	COD	437.5	µg/L	9	µg/L	97.94%
The Catch Basin Inserts listed above had no more than 3 cubic ft. of **BiocharBasic ™						

Date of Test	Pollutant Tested	Unit of Measure	PRE Treatment	Unit of Measure	POST Treatment	% Reduced
12/5/19	Copper	µg/L	28.2	µg/L	10.2	64%
12/5/19	Lead	µg/L	7	µg/L	1.8	74%
12/5/19	Zinc	µg/L	364	µg/L	61.8	83%
12/5/19	Iron	µg/L	1640	µg/L	324	80%
12/5/19	TSS	µg/L	28500	mg/L	6000	79%

Catch Basin Filter Basket Design

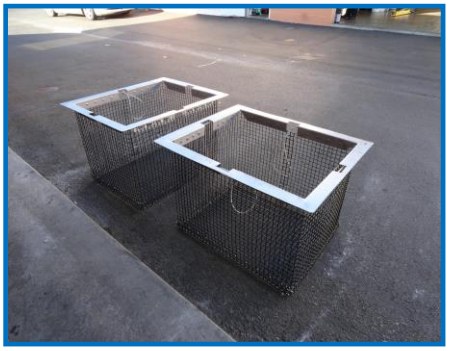
Our basic **Catch Basin Filter Basket** design (without the ***ADSORB-it*** **Filter Liner**) is a rugged heavy-duty filter screen basket made with T304, 14-gauge stainless steel frame attached to a rigid 1”x1” PVC coated wire mesh steel basket designed to capture large amounts of trash and debris that can be retrofitted and adapted to fit all types of grated inlet catch basin structures.

With adding the ***ADSORB-it*** **Filter Fabric Liners** to our filter baskets, they are capable of capturing sediments, TSS, oils, and oil borne contaminants. Utilizing our nylon mesh (geotextile) screen liner in the catch basin filter basket you have the capability to simply remove heavy sediments, trash, and debris.

(24”x 24”x24”deep = 5.01cu.ft)

(20”x24”x24”deep = 3.96cu.ft)

(24”x36”x24”deep = 7.25cu.ft.)
with Sample Port



(30”x36”x24”deep = 10.01cu.ft.)

(18”x24”x20”deep = 2.64 cu.ft. w/nylon mesh liner installed into CB structure)

ADSORB-it Catch Basin Filters with Sample Collection Ports

Our ***ADSORB-it*** **Catch Basin Filters** can also be retrofitted with either a 3" or 4" sample/overflow ports for ease of collecting storm water samples without having to remove the filter unit from the catch basin structure.

The sample/overflow port can also be used for storm water overflow during extreme or high-flow rain events to prevent flooding and back up of your catch basin.

The sample/overflow port is made with a light-weight smooth-bore PVC pipe that extends through the ***ADSORB-it*** **Catch Basin Filter** unit from the top through the bottom of the filter basket and has a removable (expandable pipe plug) cap for ease of access.







Pure Rain
STORMWATER TREATMENT
FILTER SOCKS

ADSORB-it **Filter Socks** are designed for reducing turbidity, TSS, metals and other pollutants and are an excellent way to treat throughout a site. Filter Socks can be used for sheet flow, in vaults, catch basins, ditches or swales.

Filter Socks utilize a malleable material that bends and contours to any surface. They have a high UV resistance and are designed to have a long life. Choose either **BiocharBASIC**™ or **BiocharPEAT**™

ADSORB-it **Filter Socks** work to slow the flow of storm water into the catch basins and surface drainage areas to prevent the mobilization of sediments and silts and allowing adequate retention time of turbid storm water to settle out around the outside of drainage structures preventing direct impact of storm water quality.

The ***ADSORB-it*** **Filter Socks** are used as a Sediment & Erosion Control BMP's allowing facility personnel to remove accumulated sediment and debris that has settled on and around the outside of the booms, while adsorbing metals and other pollutants.

The filter booms are a reusable BMP measure that can fully adsorb oils, oily sheen, and suspended particulates. It will trap debris, silts and sediments can be cleaned and washed off long use.

Filter SOCK Options:

- High UV resistant material
- Easy Deployment
- Easy Maintenance
- Standard Length is roughly 36" Long
- Other Lengths Available

ADSORB-it Filter Fabric Test Data & Specifications

WASTE WASHWATER FILTRATION

Initial laboratory studies show the ***ADSORB-it*** **Filtration Fabric** to be very efficient in selectively adsorbing/absorbing total suspended solids (TSS), petroleum hydrocarbons and oil-borne pollutants from wastewater.

This work was done using laboratory prepared and controlled test solutions that demonstrated the adsorptive effectiveness by testing real-world samples that measured not only the ability of the filter material to remove the pollutants of concern, but also to handle water containing floating and dissolved hydrocarbons, metals and particulates, as well as solids and debris that might affect filter performance.

METHOD:

We were provided a five-gallon sample of effluent wastewater from a logging truck wash station. The sample was thoroughly mixed and split into two sub-samples. One sub-sample was tested to determine suspected organic and inorganic pollutants. The other sub-sample was passed through a filter system using the ***ADSORB-it*** **Filter Fabric** and the filtered water was analyzed for the same pollutants.

Results of analytical chemistry are presented in the table below:

Parameter	Method #	Result Unfiltered	Result *ADSORB-it* Filtered	Detection Limit	Units
Total Suspended Solids	EPA 160.2	230	10	5	PPM
Oil & Grease	EPA 1664	1000	6	5	PPM
#2 Diesel Fuel	NWTPH-DX	910	3.4	.02	PPM
Motor Oil	NWTPH-DX	15000	3	0.4	PPM
Arsenic	EPA 6020	ND*	ND*	0.006	PPM
Cadmium	EPA 6020	0.0018	ND*	0.0005	PPM
Chromium	EPA 6020	0.013	0.0044	0.001	PPM
Copper	EPA 6010	0.077	ND*	0.01	PPM
Zinc	EPA 6010	0.011	ND*	0.01	PPM
Lead	EPA 6010	2.1	0.85	0.01	PPM

CONCLUSIONS:

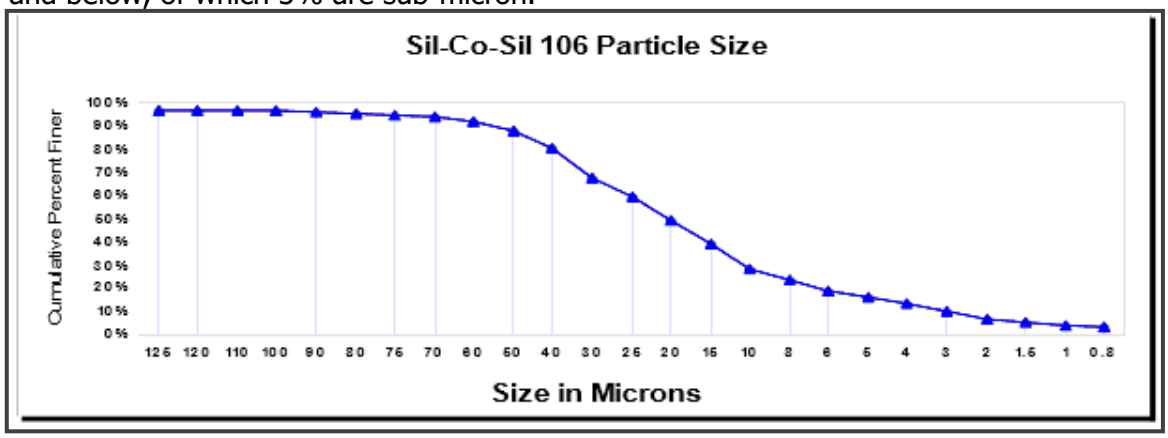
As can be seen in the table above, the ***ADSORB-it*** **Filter Fabric** adsorption capacities was highly effective in removing organic pollutants and suspended solids from the samples. Especially notable is the reduction in oil and grease, diesel and motor oil between the filtered and unfiltered samples.

SEDIMENT REMOVAL EFFICIENCY TEST (Sil-Co-Sil 106)

A full-scale test was performed to determine the sediment removal efficiency of the ***ADSORB-it*** **Filter Socks** designed for use in a storm Vault Maintenance System (VMS). The VMS was designed to allow the direct discharge to the environment of waters accumulated in underground storm vaults while complying with discharge guidelines set forth by regulatory agencies.

The standard reference sediment used in this performance test was **Sil-Co-Sil 106**, obtained from US Silica. This silica powder is the **benchmark to test BMP's** for efficiency of sediment removal. The regulatory goal for sediment removal efficiency using **Sil-Co-Sil 106** is 80%. Anything above this value is considered excellent.

Sil-Co-Sil 106 has 27 percent of its particle size between 150-45 microns and 73% below 45 microns, with 12% 1.5 micron and below, of which 3% are sub-micron.



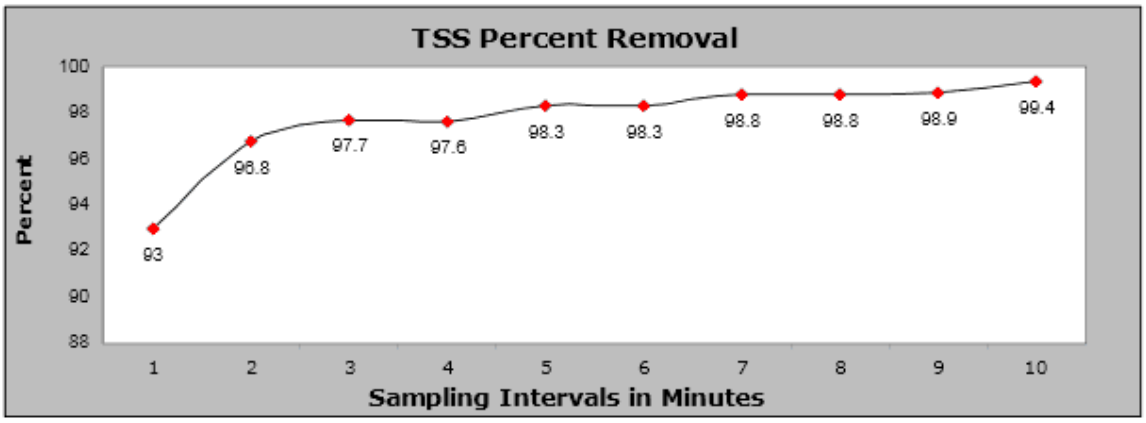
The test was conducted using two 360-gallon open top storage bins. One used as a sediment holding vault, the other as a receiving vessel. A channel connecting the two bins held the ***ADSORB-it*** **Filter Sock**. The VMS sock was connected to a two-inch hose with an inline turbine flow meter and pressure gauge. The assembly was connected to a 110-gpm submersible centrifugal pump.

The holding tank was filled to capacity and **Sil-Co-Sil 106** was added to the water. The circulation valve was opened and the water was re-circulated until the Sil-Co-Sil 106 was consistently mixed, at which time the initial sample was taken. Samples were taken from the outfall channel after filtering thru the ***ADSORB-it*** **Filter Sock** at 1-minute intervals.

A final sample was taken from the receiving tank representing a composite of the total filtrate from the sock. The samples were analyzed for Total Suspended Solids (TSS) using EPA Method 160.2.

The results from the test samples are presented in the table below:

TSS EPA Method 160.2				
Initial Sil-Co-Sil 106 with TSS of 2700 Mg/L unfiltered				
Sample ID	Time Interval	Flow GPM	TSS Mg/L	Percent Removal
#1	1 min	73	222	93
#2	2 min	11	87	96.8
#3	3 min	9	72	97.7
#4	4 min	7	66	97.6
#5	5 min	5	49	98.3
#6	6 min	4	46	98.3
#7	7 min	3	34	98.8
#8	8 min	3	35	98.8
#9	9 min	3	33	98.9
#10	10 min	2	19	99.4



CONCLUSION:

The filtration efficiency increased with time. This was due to sediments being deposited within the filter sock, filling in the ***ADSORB-it*** fabric's micron pores, allowing enhanced removal of sub-micron particles. Flow rates will vary dependent on the sediments micron ratings. **Sil-Co-Sil 106** is an extremely fine powder, unlike normal sediments. Natural sediments such as soil or cinder clay allow much greater flow rates and loading as the larger particle size keep the fabric's micron pores from sealing off. The overall sediment removal rate from the total of the filtrate was 98.3%, which far exceeds the 80% standards for rating BMP devices.

ADSORB-it Catch Basin Filter Capacities

Model No.	ADSORB-it Product Name	Frame Dimensions	Sump Depth	Cubic Feet	Filter Media Weight	*DCV %
ASF-18X24	Adsorb-it CB Filter	18”x24”	24”	3.43	75-lbs.	90%
ASF-20X24	Adsorb-it CB Filter	20”x24”	24”	3.96	80-lbs.	90%
ASF-25X25	Adsorb-it CB Filter	25”x25”	24”	5.56	100-lbs.	90%
ASF-30X30	Adsorb-it CB Filter	30”x30”	24”	8.68	150-lbs.	90%
ASF-24X36	Adsorb-it CB Filter	24”x36”	24”	8.18	150-lbs.	90%
ASF-24x48	Adsorb-it CB Filter	24”x48”	24”	11.35	200-lbs.	90%
ASF-24OD	Adsorb-it Round Filter	24” Diameter	24”	5.01	80-lbs.	90%
ASF-30OD	Adsorb-it Round Filter	30” Diameter	24”	5.56	100-lbs.	90%
CBI-18X24	CB Filter W/Mesh Liner	18”x24”	24”	3.43	NA	100%
CBI-20X24	CB Filter W/Mesh Liner	20”x24”	24”	3.96	NA	100%
CBI-25X25	CB Filter W/Mesh Liner	25”x25”	24”	5.56	NA	100%
CBI-30X30	CB Filter W/Mesh Liner	30”x30”	24”	8.68	NA	100%
CBI-36X24	CB Filter W/Mesh Liner	36”x24”	24”	8.18	NA	100%
CBI-48X24	CB Filter W/ Mesh Liner	48”x24”	24”	11.35	200-lbs	100%

Model No.	ADSORB-it Product Name	Frame Dimensions	Oil/FOG Capacity	Sediment Capacity	Metals Capacity	Flow Rates
ASF-18X24	Adsorb-it CB Filter	18”x24”	3.00-gal.	40.0-lbs.	4.50-lbs.	60-gpm
ASF-20X24	Adsorb-it CB Filter	20”x24”	3.25-gal.	42.5-lbs.	6.50-lbs.	65-gpm
ASF-25X25	Adsorb-it CB Filter	25”x25”	4.75-gal.	62.5-lbs.	7.50-lbs.	70-gpm
ASF-30X30	Adsorb-it CB Filter	30”x30”	6.75-gal.	80.5-lbs.	10.25-lbs.	80-gpm
ASF-36X24	Adsorb-it CB Filter	36”x24”	6.75-gal.	80.5-lbs.	10.25-lbs.	80-gpm
ASF-24OD	Adsorb-it Round Filter	24” Diameter	6.25-gal.	66.5-lbs.	6.50-lbs.	70-gpm
ASF-30OD	Adsorb-it Round Filter	30” Diameter	7.50-gal.	70.5-lbs.	10.50-lbs.	80-gpm
CBI-18X24	CB Filter W/Mesh Liner	18”x24”	NA	90.0-lbs.	NA	262.5-gpm
CBI-20X24	CB Filter W/Mesh Liner	20”x24”	NA	90.0-lbs.	NA	270.5-gpm
CBI-25X25	CB Filter W/Mesh Liner	25”x25”	NA	110.0-lbs.	NA	285.0-gpm
CBI-30X30	CB Filter W/Mesh Liner	30”x30”	NA	125.0-lbs.	NA	310.0-gpm
CBI-24X36	CB Filter W/Mesh Liner	24”x36”	NA	140.0-lbs.	NA	360.5-gpm
CBI-48X24	CB Filter W/Mesh Liner	48”x24”	NA	165.0-lbs.	NA	390.5-gpm

*Design Capture Volume (DCV)

NOTICE

***ADSORB-it* Catch Basin Filter** capacities and calculations are based on current and historical test data, as well as individual clients storm water management reports. Flow rate calculations are approximate and may vary ± 10%. The ***ADSORB-it* Catch Basin Filters** are designed with overflow protection to prevent backing up or ponding under normal operating conditions.

Typically, waste solids and spent filter media trapped/contained within the ***ADSORB-it* Catch Basin Filters** designate as a non-regulated solid waste (under normal conditions) and can be managed/serviced by your local Vactor truck service company (subject to testing/profiling) per local, State and Federal (EPA) Environmental Regulations.

SPECIFICATIONS FOR MAINTENANCE & OPERATIONS

SCOPE:

Federal Clean Water Act regulations and State and local Drainage Maintenance Standards require that catch basin filter inserts be maintained and serviced on a regular basis. The intent of the regulations is to ensure that the systems, on a continuing basis, effectively remove pollutants from storm water runoff thereby preventing pollution of the nation's water resources.

ADSORB-it **Catch Basin Filters.**

Proper function of the ***ADSORB-it*** **Catch Basin Filters** requires ongoing maintenance on a regular basis with average quarterly inspections and removal of any accumulated sediment/debris from the top inlet of the filter unit.

A more thorough and complete maintenance cleaning should be performed on an annual basis for service/replacing of the ***ADSORB-it*** fabric material and/or **Biochar** filter media. However, the frequency ultimately depends on the amount of pollutant loading and saturation of the **Biochar** contained within the

RECOMMENDED MAINTENANCE SCHEDULE:

We recommend that the ***ADSORB-it*** **Catch Basin Filters** be serviced and maintained on a regular basis at least once every 6-months for the maintenance service cleaning and replacement of the ***ADSORB-it*** fabric material and/or **Biochar Filter Media**.

The frequency ultimately depends on the amount of runoff, pollutant loading and impacts from sediment, trash, and other debris. However, it is recommended that each unit be inspected quarterly or at a minimum of three times a year.

The maintenance cleaning of the ***ADSORB-it*** **Catch Basin Filters** should be performed by qualified Vactor Service Company that has the necessary equipment to thoroughly pressure wash, clean, and vacuum up all accumulated contaminants within the catch basin filter unit and drainage structure for removal and off-site disposal.

RECOMMENDED TIMING OF MAINTENANCE INSPECTION:

Guidelines for the timing of Maintenance Inspections are as follows:

1. Regions with a definite rainy season: Prior to, during and following a significant rainfall event.
2. Regions with year-round rainfall: On a recurring basis (quarterly or at least three times per year).
3. Regions with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. Installed ***ADSORB-it*** **Catch Basin Filters** not impacted by weather events (steam/wash racks, interior catch basins, sumps, covered drains in shops/parking garages, etc.): On a regular basis (no less than two times per year).
5. Facilities with unpaved areas such as exposed gravel or dirt surface areas should be inspected on a monthly basis.

INSTALLATION PROCEDURES:

Prior to the installation of each ***ADSORB-it*** **Catch Basin Filter**, we strongly recommend that the following be performed:

1. Pre-Inspection and measurement of each in-ground storm water structure to identify any defects and ensure a proper design fit of the ***ADSORB-it*** **Catch Basin Filter**.
2. A thorough cleaning and pressure-washing of each storm drainage structure should be performed by a **Vactor Truck Service**.
3. If installing ***ADSORB-it*** **Catch Basin Filters** over entire storm drainage system, a complete and thorough cleaning of the storm drainage system should be performed, including Vactor hydro-jetting and pressure cleaning of conveyance pipes between each catch basin structure.

ONGOING MAINTENANCE PROCEDURES

Post installation procedures for maintaining integrity of the ***ADSORB-it*** **Catch Basin Filter**:

1. Post installation visual monitoring during the first rainfall event identifying proper fit and storm water flow rate of the ***ADSORB-it*** **Catch Basin Filter** installed into each catch basin structure.
2. Create a "Maintenance Checklist" for service intervals, identifying any defects such as improper fitting, over sedimentation, drainage backup or ponding issues and discolored or saturated filter media.
3. Conduct weekly inspections during the first month of installation to ensure the ***ADSORB-it*** **Catch Basin Filters** are draining properly and working as designed.

4. Perform monthly inspections thereafter and maintenance of each ***ADSORB-it*** **Catch Basin Filter** to remove accumulated sediment/debris of the inlet chamber and check the overflow protection ports.

5. It is recommended on a semi-annual basis (6-month service) that a maintenance cleaning of the ***ADSORB-it*** **Catch Basin Filter** is performed by a Vactor Truck Service for a complete and thorough washing/cleaning of each filter unit.

6. It is also recommended that the **Biochar Filter Media** contained within the ***ADSORB-it*** **Catch Basin Filter** be replaced (as an average) every 12 months, depending on your site conditions, pavement cleanliness, the amount of pollutants impacting the filters such as dirt and debris flowing into the drainage structures, as well as discolored or saturated filter media.

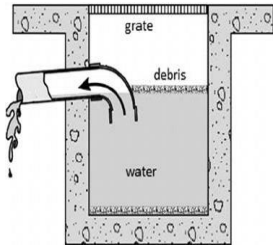
ADSORB-it Catch Basin Filter Installation

PRE-INSTALLATION PROCEDURES:

1. Measure your catch basins Outside Dimensions (OD) of the grate cover or frame lip your grate sits on.

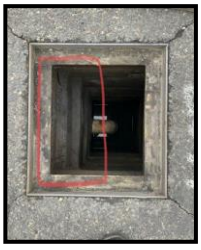

2. Measure the Inside Dimensions (ID) of the frame lip, which is the opening space of your catch basin structure.


3. Measure the depth of your catch basin structure and the depth to any inlet/outlet pipes below the frame/grate.

4. Measure for any obstacles in your catch basin below the frame and grate such as pipes, off set frames and/or bulging concrete side walls.





Proper fit of the *ADSORB-it* Catch Basin Filter prior to installing the Biochar Media.

Test fit the catch basin filter to ensure that it sits down evenly on the frame lip of the structure. Place the grate over the Catch Basin Filter and ensure it seats evenly and that the grate is flush with the surrounding pavement.



Installation of the Biochar Media into the *ADSORB-it* Catch Basin Filter.

Place the ***ADSORB-it* Catch Basin Filter** back into the catch basin structure and fill the approximate amount of **Biochar Media** needed into each filter unit. Fill with **Biochar Media** to approximately 80% of the sump capacity of each filter unit.

Installing *ADSORB-it* Catch Basin Filters with Obstacles.



CATCH BASIN MEASUREMENT FORMS

STORMWATER TREATMENT
CATCH BASIN Inserts

How to Measure Your Catch Basin Structure

Company:_____

Address:_____

City/State/Zip:_____

Contact Name:_____

Contact Phone:_____

Contact Email:_____

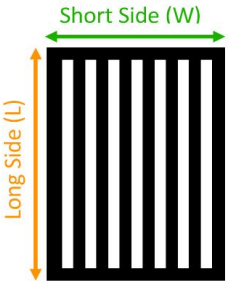
Catch Basin Number:_____

Grate Sizing

(Check all that apply)

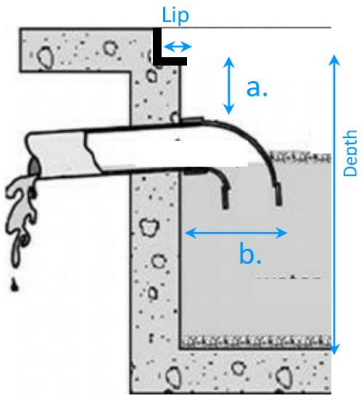
Catch Basin	Long Side (Length) Inches	Short Side (Width) Inches
Grate Size		
Inside Opening		
Frame Lip		
Depth (up to 36")		

☐ Square
☐ Round
☐ Flat Bottom
☐ Square Belly
☐ Round Belly



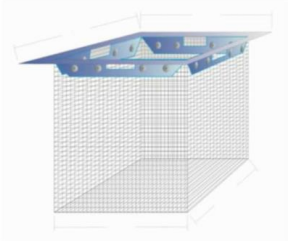
Any Obstacles?

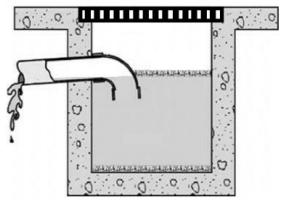
Measuring For Obstacles:	On The Long Side?	Or The Short Side?
a. How Deep?		
b. How Far Out?		
c. How Far Over?		
d. How Wide?		



Stormwater BMP Products

STORMWATER TREATMENT





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EMAIL:
info@stormh20bmp.com
dclark@nwstormwater.com

STORMWATER TREATMENT
CATCH BASIN Inserts

How to Measure Your Catch Basin Structure

Company:_____

Address:_____

City/State/Zip:_____

Contact Name:_____

Contact Phone:_____

Contact Email:_____

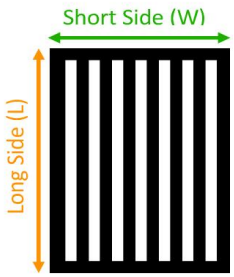
Catch Basin Number:_____

Grate Sizing

(Check all that apply)

Catch Basin	Long Side (Length) Inches	Short Side (Width) Inches
Grate Size		
Inside Opening		
Frame Lip		
Depth (up to 36")		

☐ Square
☐ Round
☐ Flat Bottom
☐ Square Belly
☐ Round Belly



Any Obstacles?

Measuring For Obstacles:	On The Long Side?	Or The Short Side?
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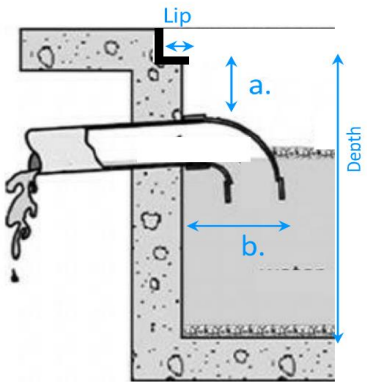
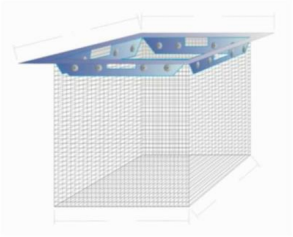
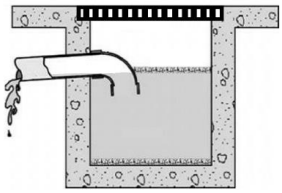
b. How Far Out?		
c. How Far Over?		
d. How Wide?		



Stormwater BMP Products

STORMWATER TREATMENT





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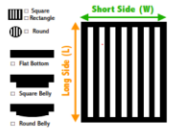
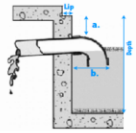
dclark@nwstormwater.com

Stormwater BMP Products

Catch Basin Insert Measurment Form

Company:	
Site Address:	
City/State/Zip:	
Site Contact:	
Contact Phone:	
Contact E-mail:	



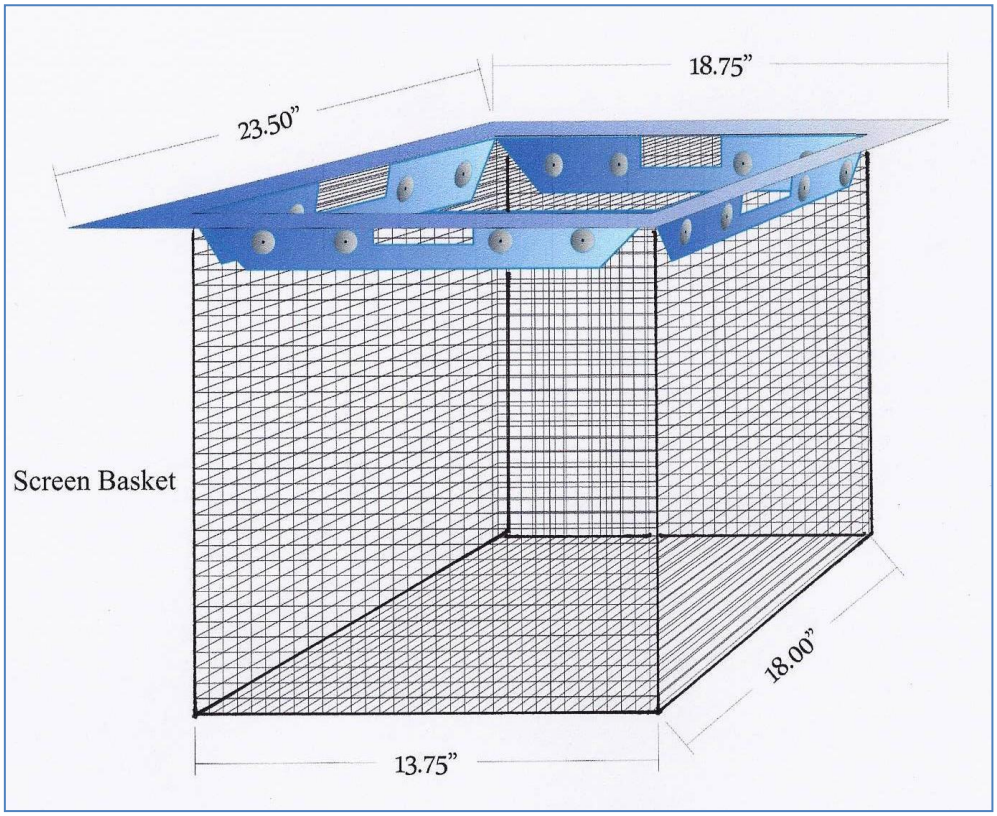


Liners:
- ☐ All w/Adsorb-It
- ☐ All w/Screen
- ☐ Varies, See Notes
- ☐ All with Test Ports

Abbreviations: L = Length, W=Width, FB = Flat Bottom Grate, SB = Square Belly Grate, RB = Round Belly Grate, a = obstacle's distance down, b = obstacle's distance out

Catch Basin ID	Location	Catch Basin Grate			Catch Basin Inside				Obstacles			Notes
		Type	L (in)	W (in)	Lip (in)	L (in)	W (in)	Depth (in)	(Yes/No)	(a) in	(b) in	

ABSTRACT DRAWING OF CATCH BASIN FILTER



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www.StormwaterBiochar.Com