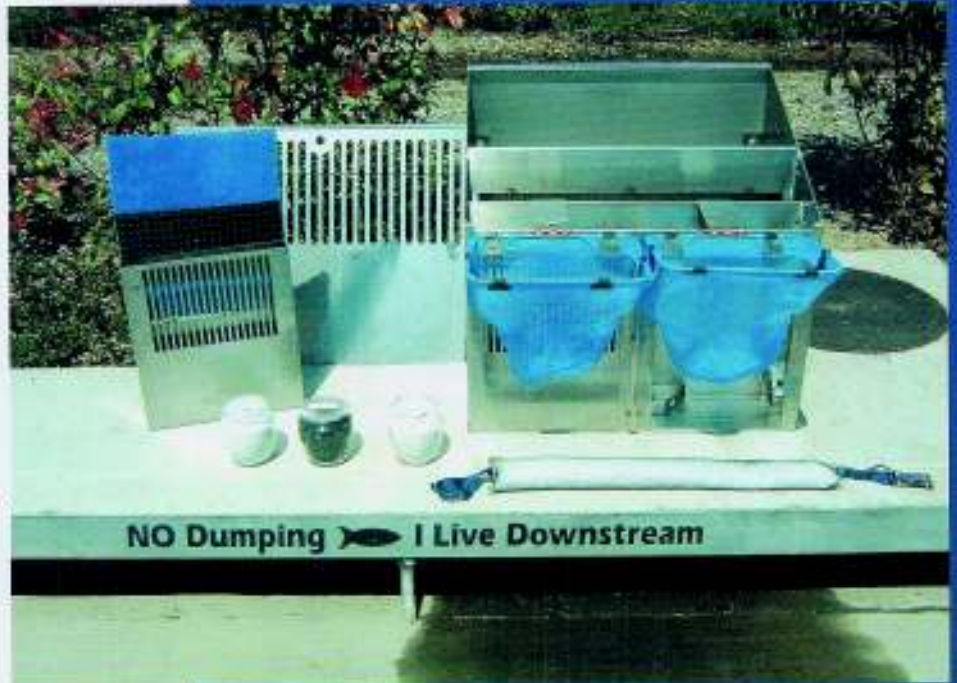


# The ClearWater BMP Curb Inlet Filter

The ClearWater BMP is a powerful advancement in sidewalk curb inlet filtration technology. The filter train design allows stormwater flows to be screened, settled, and then filtered, all within the confines of an existing curb inlet drain box. This aggressive filtration design significantly reduces concentrations of trash, sediment, hydrocarbons, metals, and nutrients. Specifically designed for retrofitting within the existing curb and gutter infrastructure, it handles heavy storm flows with ease, dry weather flows expertly, utilizes mosquito free technology and requires no excavation or concrete modification. The ClearWater BMP truly is your curb inlet pollution solution.



## Features

- Fits into existing curb inlets
- Non-scouring
- Large storage capacity
- Easy street level maintenance
- No clogging under heavy flows
- Durable stainless steel construction
- Affordable

## Benefits

- Improves downstream water quality
- High removal rate of Total Suspended Solids – 97%
- Located close to pollutant sources
- Reduces concentrations of trash, sediment, hydrocarbons, metals and nutrients
- NPDES Compliant – now and in the future

# ClearWater BMP



CRYSTALSTREAM TECHNOLOGIES  
2090 Sugarloaf Parkway, Suite 135  
Lawrenceville, Georgia 30045

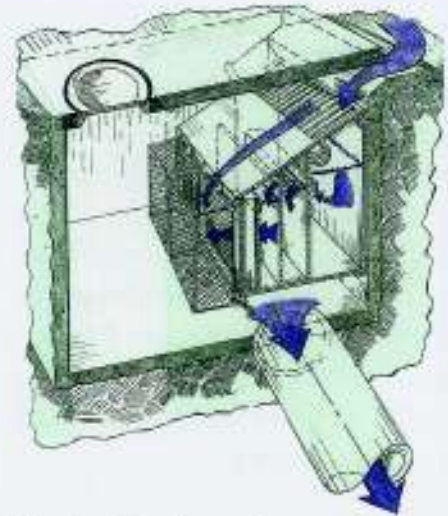
Phone: 800-748-6945

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

# System Operation

The ClearWater BMP is a powerful advancement in sidewalk curb inlet filtration technology. Specifically designed for retrofitting under the sidewalk within the curb and gutter system, it handles heavy storm flows with ease, utilizes mosquito free technology, and requires no excavation or concrete modification.

The revolutionary design of the ClearWater BMP allows storm water to be screened three times, settled three times, make constant surface contact with an oil and great separator, pass through a synthetic mesh filter, and finally pass through a column of porous media comprised of natural zeolites, perlite, and activated carbon. Filter media can be tailored to site specific needs. These media and the unique engineering design of the filter support containing them, enhances removal of small particulates, thus improving the quality of life downstream.



# Performance Testing

Using the "typical" storm water calculations of 0.2 inches (3,780 gallons) of rain per hour for an ordinary curb inlet, the ClearWater BMP performed very well. Proven testing from San Diego State University shows the ClearWater BMP has removal rates of 97% for total suspended solids (TSS), 86% for oil and grease (O & G), 81% for lead (Pb), and 83% for zinc (Zn). Satisfactory rates of removal were accomplished with heavy metals in solutions, a claim that will not be found in most competitors literature since most only clean out larger settled constituents, while the finer materials flow downstream contaminating wildlife and beaches.

## Removal with Mixed-Media Filter at 64 GPM

	"Typical" % Removal with ClearWater BMP
<b>TSS:</b> Total Suspended Solids	97
<b>O&amp;G:</b> Oil & Grease	86
<b>Pb:</b> Lead	81
<b>Zn:</b> Zinc	83
Bacteria	97

## What is your NPDES compliance criteria?

ClearWater BMP Treatment Capacity					
Rainfall Intensity, Inches/Hr.	0.20	0.25	0.50	0.75	1.0
R.O.W. Treatment Capacity, Acres	2.5	2.0	1.0	0.67	0.50

200 GPM (.46 CFS) before bypassing occurs.



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# WHAT IS YOUR NPDES COMPLIANCE CRITERIA?

Typical Street Right-of-way for:

## ClearWater BMP Treatment Capacity

<b>Rainfall Intensity, Inches/Hr</b>	<b>0.20</b>	<b>0.25</b>	<b>0.50</b>	<b>0.75</b>	<b>1.0</b>
<b>R.O.W. Treatment Capacity, Acres</b>	<b>2.5</b>	<b>2.0</b>	<b>1.0</b>	<b>0.67</b>	<b>0.50</b>

\* treatment capacity = 200 gpm before flow bypassing occurs .46 cfs

ClearWater BMP Design Consideration	Feature Specifications	Benefits
<b>Targeting Urban Retrofit and New Development:</b> Impervious surface runoff capture and treatment area equivalent.	Filters up to 1.5" of rain per hour. At .50" of rain per hour unit can handle 43,560 square feet of drainage (1 acre).	Conserves land for other uses; optimizes land use where space is at a premium, e.g., urban retrofit.
<b>Trash &amp; Debris Containment</b>	5.0 Cubic feet	Separates and contains large debris.
<b>Flow Thru Design Limits:</b>		
Continuous flow-thru design limit	200 gpm	Exceeds NPDES criteria for "first flush".
Overflow flow-thru to flood system	No clogging of stormdrains.	
Primary Chamber Capacity	Coarse Settling 5.5 cf capacity	Cover and Back-panel Baffle ensures that it never scours/re-suspends sediments.
Secondary Chamber Capacity	Fine Settling	Submerged necking-down between chambers ensures stilling and sedimentation.
Final Chamber	Soluble Filtering	Soluble Filtration including Bacteria.
<b>Filter Media:</b> <ul style="list-style-type: none"> <li>Perlite-zeolite mix</li> <li>AbTec panel smart sponge (option)</li> <li>Rubberizer oil-sock</li> <li>Fish Filter pad</li> </ul>	<b>Targeting:</b> <ul style="list-style-type: none"> <li>Metals, emulsified hydrocarbons, organics (chlorine, ammonia)</li> <li>Pathogens</li> <li>Floating hydrocarbons</li> <li>Larger diameter suspended solids</li> </ul>	<ul style="list-style-type: none"> <li>Pollution reduction at/near the source.</li> <li>Removal efficiencies: 97% TSS, 86% Oil and Grease (O&amp;G), 81% for lead (Pb), 83% for Zinc (Zn).</li> <li>Satisfactory rates for heavy metals in solution.</li> </ul>
<b>Maintenance Requirements:</b> <ul style="list-style-type: none"> <li>Filter media</li> <li>Sediment removal</li> </ul>	As required. Can be done from the curb using shop vac and generator or pumper truck.	Does not require sophisticated system. Is accessed from the curb.
<b>Fabrication Materials</b>	.304 gauge stainless steel, 16 GA	Won't corrode. 20 year service = LIFE
<b>Outside Dimensions</b>	30" wide; 30" high at rear-tapers to 20" at front, 34" front to back including trash hoops and nets.	
<b>Assembly</b>	Assembles inside existing drain box.	Can be retrofitted to older systems if box is large enough. Narrower Model is available.
<b>Mosquito Free</b>	Self-draining	Presents no health hazard.
<b>Water Capture:</b> 100% (at 200 gpm)	Design brings all water through the system; water tight seals between wall of drain box and filter.	Treats all water; captures all trash.

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# The ClearWater BMP is a Filtration System!

## Structural Treatment Control BMP Selection Matrix

Pollutant of Concern	Treatment Control BMP Categories							
	Biofilters	Detention Basins	Infiltration Basins	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems	
Sediment	M	H	H	H	L	H	M	
Nutrients	L	M	M	M	L	M	L	
Heavy Metals	M	M	M	H	L	H	L	
Organic Compounds	U	U	U	U	L	M	L	
Trash & Debris	L	H	U	U	M	H	M	
Oxygen Demanding Substances	L	M	M	M	L	M	L	
Bacteria	U	U	H	U	L	M	L	
Oil & Grease	M	M	U	U	L	H	L	
Pesticides	U	U	U	U	L	U	L	

(1) Including trenches and porous pavement.

(2) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency

M: Medium removal efficiency

H: High Removal efficiency

U: Unknown removal efficiency

Sources: Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (1993), National Stormwater Best Management Practices Database (2001), and Guide for BMP Selection in Urban Developed Areas (2001).