



**STORMWATER OPERATION
&
MAINTENANCE MANUAL**

**MOUNTAIN VIEW AUTO BODY
BLOCK 3905, LOTS 12, 13 & 14
246-264 SOUTH BROAD STREET
VILLGE OF RIDGEWOOD, BERGEN COUNTY, NEW JERSEY
BE# 22-146**

**DATE PREPARED:
DATE REVISED:**

**JUNE 13, 2022
APRIL 22, 2025**

PREPARED FOR:

MOUNTAIN VIEW AUTO
96 NEWARK POMPTON TURNPIKE
WAYNE, NJ 07470

PREPARED BY:

BERTIN ENGINEERING
66 GLEN AVENUE
GLEN ROCK, NJ 07452

A handwritten signature in black ink, appearing to read 'Shan-Pei Fanchiang', is written over a horizontal line.

**SHAN-PEI FANCHIANG, P.E.
N.J.P.E. LICENSE NO. 37073**

STORMWATER OPERATION & MAINTENANCE MANUAL

RESPONSIBLE PARTIES

- | | |
|--|--|
| 1. Location: | Block 3905, Lots 12, 13 & 14
246-264 South Broad Street
Ridgewood, Bergen County, New Jersey |
| 2. Owner: | Mountain View Auto
96 Newark Pompton Turnpike
Wayne, NJ 07470 |
| 3. Entity Responsible for Maintenance: | Mountain View Auto
96 Newark Pompton Turnpike
Wayne, NJ 07470 |
| 4. Maintenance Contractor: | TBD |
| 5. Designer: | Bertin Engineering
66 Glen Avenue
Glen Rock, NJ 07452
201-670-6688 |

The party listed under item #3 (Entity Responsible for Maintenance) is responsible for corrective and preventative maintenance as per N.J.A.C. 7:8-5.8(b).

STORMWATER OPERATION & MAINTENANCE MANUAL

Specific Maintenance Procedures

1. Construction Sequencing and Quality Control:

Construction sequencing shall balance the timing of land disturbance activities and the installation of measures to control erosion and sediment in order to reduce on-site erosion and off-site sedimentation. Construction sequencing is utilized to plan earthwork and erosion control activities on site in order to preserve water quality within the site's watershed area. Proposed soil erosion and sediment control practices must be utilized throughout construction.

2. Regular Maintenance of Site:

The proposed stormwater systems are intended to treat and convey the stormwater on the property. The maintenance plan is prepared to ensure the system operates at its maximum efficiency. The responsible party is accountable to ensure the operation, maintenance, repair, and safety of the stormwater system. Maintenance of the stormwater system should be performed on a regular basis. This includes but is not limited to debris and sediment removal with proper disposal, mosquitoes/insect control and inspection work.

Other regular maintenance includes mowing of lawn areas, pruning and/or restoration of landscaping and vegetation, restoration of eroded areas, and the elimination of any mosquito breeding habitats as needed. The parking lot shall be swept by a street sweeper on a quarterly basis.

3. Maintenance of Stormwater Management:

A. General

All trees, shrubs, and underbrush must be pruned or trimmed as necessary to maintain access to the stormwater management measures such as manholes, inlets, outlet control structure, underground detention basins, the onsite conveyance system and landscaping. The proposed system must not increase health or safety risks in any way. Increased staffing, improved equipment, and more specialized training may be required to properly maintain the new facility. Two people will be needed to perform routine maintenance of the systems. The routine equipment to be utilized for the maintenance tasks include a jet vacuum vehicle, shovels, lighting equipment, and a wheelbarrow or truck for the hauling of debris. During maintenance and inspections, all associated safety and protection measures must be taken. Water, mosquito control chemicals, and concrete repair materials may also be required depending on the

condition of the structures. Inspection and maintenance logs shall be maintained and provided upon request of town officials.

B. Inlets, Manholes, Outlet Control Structures & Conveyance System

The inlets, manholes, outlet control structures and conveyance piping shall be inspected for excessive debris and sediment accumulation semi-annually as well as after every storm exceeding 1 inch of rainfall in a one hour period. Concrete structures should be checked annually for cracking, subsidence, spalling, erosion and deterioration. Removal of debris, trash, sediment, and other waste materials should be performed when there is a building of sediment in excess of 2 inches. This can be removed manually or by vacuum. Disposal of such debris must be performed at suitable disposal/recycling sites and in compliance with local, state, and federal waste regulations.

The attached "Maintenance Inspection for Inlets/Manholes/Outlet Control Structures/Conveyance System" and "Maintenance Log for Inlets/Manholes/Outlet Control Structures/Conveyance System" must be completed during every routine maintenance and inspection.

C. Cultec Recharger Units

Please see the attached Cultec Operation & Maintenance Information for maintenance instructions for the water treatment units. Disposal of debris, trash, sediment, and other waste material removed from the stormwater drainage system is to be done at suitable disposal/recycling sites and in compliance with local, state, and federal waste regulations.

The party responsible for the maintenance plan as indicated on page 2 shall coordinate the inspections as per the attached maintenance schedule.

The Annual Record of Operation and Maintenance must be completed during every routine maintenance and inspection for each unit.

D. High Capacity Kraken Filter

Please see the attached High Capacity (HC) Kraken Filter Operation & Maintenance Manual for maintenance instructions for the water treatment unit. Disposal of debris, trash, sediment, and other waste material removed from the stormwater drainage system is to be done at suitable disposal/recycling sites and in compliance with local, state, and federal waste regulations.

The party responsible for the maintenance plan as indicated on page 2 shall coordinate the inspections as per the attached inspection & maintenance schedule.

The Inspection and Maintenance Report at the end of the manual must be completed during every routine maintenance and inspection for each unit.

E. Vegetated Areas

Grass should be mowed at least once a month during the growing season. Vegetated areas shall be inspected annually for erosion and scour and for unwanted trees and weeds. When establishing or restoring vegetation, biweekly inspections of vegetation health shall be performed during the first growing season or until the vegetation is established. Once established, inspections of vegetation health, density, and diversity shall be performed twice annually during both the growing and non-growing season. If vegetation has greater than 50 percent damage, the area will be reestablished in accordance with the original specifications and the inspection requirements presented above. All use of fertilizers, mechanical treatments, pesticides, and other means to assure optimum vegetation health must not compromise the intended purpose of the infiltration basin. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible. All vegetated areas shall be inspected at least annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation and basin subsoil.

4. Maintenance Records

Records of the maintenance shall be maintained by the management company or building superintendent, and made available to health inspectors or other City officials. All repairs of the stormwater system must be recorded. Attached are the applicable maintenance logs and forms.

MAINTENANCE INSPECTION FOR INLETS, MANHOLES, OUTLET CONTROL STRUCTURES & CONVEYENCE SYSTEM

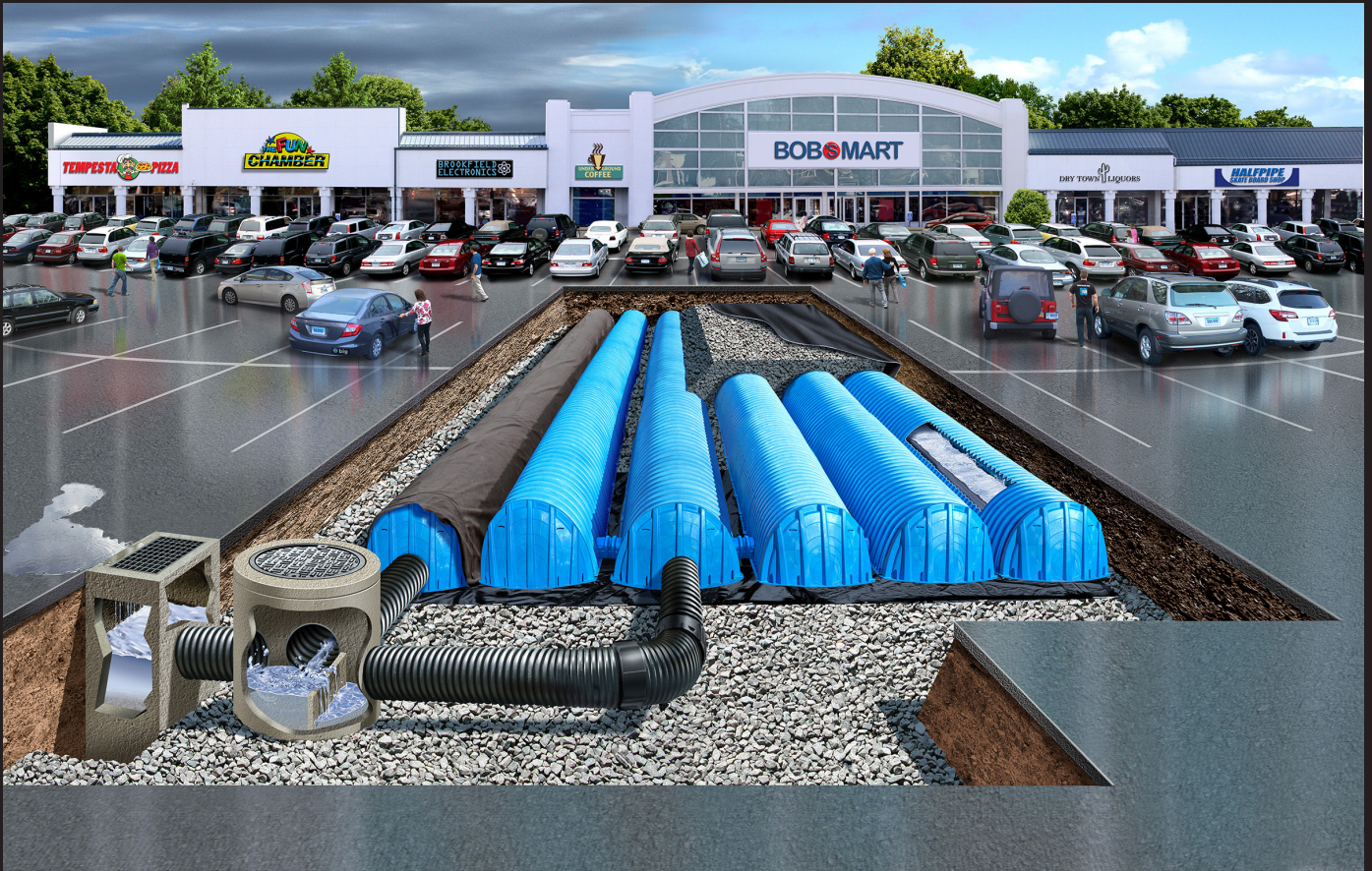
MOUNTAIN VIEW AUTO BODY
96 NEWARK POMPTON TURNPIKE
WAYNE, NJ 07470

NOTE: INSPECTIONS TO BE EVALUATED DURING A PERIOD OF DRY AND WARM WEATHER AND LOW TIDE CONDITIONS AT THE PROJECT SITE.

Yes	No	Maintenance Evaluation	Action(s) Required if Answer "Yes"
<input type="checkbox"/>	<input type="checkbox"/>	Is there a buildup of sediment (in excess of 2 inches), trash, debris or any other stormwater pollution?	Remove sediment and evaluate on-site upstream systems. Dispose debris in accordance with local, state, and federal requirements.
<input type="checkbox"/>	<input type="checkbox"/>	Is there standing water?	Evaluate downstream systems for clogging or trash sediment buildup.
<input type="checkbox"/>	<input type="checkbox"/>	Are there any structural failure?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there visible signs of cracking, subsidence, erosion or deterioration of any of the inlets, manholes, outlet control structures or piping?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there any root intrusions or any other vegetation within the inlets, manholes, outlet control systems or piping?	Remove roots and dispose vegetation in accordance with local, state and federal regulations.
<input type="checkbox"/>	<input type="checkbox"/>	Are ladder rungs in manholes or outlet structures damaged, missing, or misaligned?	Repair or replace.
<input type="checkbox"/>	<input type="checkbox"/>	Are any covers or grates missing, damaged, or only partially in place at any inlets, manholes or outlet control structures?	Repair or replace.

CONTACTOR® & RECHARGER®

STORMWATER MANAGEMENT SOLUTIONS



OPERATION & MAINTENANCE GUIDELINES FOR CULTEC STORMWATER MANAGEMENT SYSTEMS



OPERATIONS AND MAINTENANCE GUIDELINES

Published by

CULTEC, Inc.

P.O. Box 280

878 Federal Road

Brookfield, Connecticut 06804 USA

www.cultec.com

Copyright Notice

© 2019 CULTEC, Inc. All rights reserved. Printed in the USA.

This document and any accompanying CULTEC products are copyrighted by CULTEC, Inc. Any reproduction and/or distribution without prior written consent from CULTEC, Inc. is strictly prohibited.

Disclaimers:

The drawings, photographs and illustrations shown in this document are for illustrative purposes only and are not necessarily to scale.

Actual designs may vary.

CULTEC reserves the right to make design and/or specification changes at any time without notice at CULTEC's sole discretion.

CULTEC, the CULTEC logo, RECHARGER, CONTACTOR, HVLV, PAC, STORMFILTER, STORMGENIE and The Chamber with The Stripe are registered trademarks of CULTEC, Inc.

Chamber of Choice, HD, 100, 125, 150, 150XL, 180, 280, 330, 330XL, 360, V8, 902, Field Drain Panel, C-1, C-2, C-3, C-4, EZ-24, Landscape Series are trademarks of CULTEC, Inc. © Copyright on all drawings, illustrations, photos, charts - CULTEC, Inc. All rights reserved.

Protected by one or more of the following patents owned by Cultec, Inc.:

U.S. Patents 6,129,482; 6,322,288; 6,854,925; 7,226,241; 7,806,627; 8,366,346; 8,425,148; U.S. Designs D613,819; D638,095; D668,318; Canadian Patent 2,450,565; 2,591,255; Canadian Designs 129144; 135983; 159073; 160977; and/or other U.S. or Foreign Patent(s) or Patent(s) Pending.

Contact Information:

For general information on our other products and services, please contact our offices within the United States at (800)428-5832, (203)775-4416 ext. 202, or e-mail us at custservice@cultec.com.

For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CLT057 01-20

January 2020

These instructions are for single-layer traffic applications only. For multi-layer applications, contact CULTEC. All illustrations and photos shown herein are examples of typical situations. Be sure to follow the engineer's drawings. Actual designs may vary.

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

- A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.
- B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.
 1. **Manhole Access**
This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

2. StormFilter Access

Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

- C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

- A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.
- B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.
- C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.
- D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance

The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance

The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

	Frequency	Action
Inlets and Outlets	Every 3 years	<ul style="list-style-type: none"> Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	<ul style="list-style-type: none"> Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	<ul style="list-style-type: none"> Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	<ul style="list-style-type: none"> Clean stormwater management chambers and feed connectors of any debris. Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	<ul style="list-style-type: none"> Clean stormwater management chambers and feed connectors of any debris. Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. Attain the appropriate approvals as required. Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1 st year	<ul style="list-style-type: none"> Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	<ul style="list-style-type: none"> Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	<ul style="list-style-type: none"> Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

WQMP Operation & Maintenance (O&M) Plan

Project Name: _____

Prepared for:

Project Name: _____

Address: _____

City, State Zip: _____

Prepared on:

Date: _____

This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer’s maintenance requirements, permits, etc.

8.1.1 Project Information

Project name	
Address	
City, State Zip	
Site size	
List of structural BMPs, number of each	
Other notes	

8.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

Name of Person or HOA Property Manager	
Address	
City, State Zip	
Phone number	
24-Hour Emergency Contact number	
Email	

8.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in this document.

8.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. AutoCAD files and/or GIS coordinates of BMPs shall also be submitted to the City.

Appendix ____

BMP SITE PLAN

Site plan is preferred on minimum 11" by 17" colored sheets, as long as legible.



Minor Maintenance

Frequency		Action
Monthly in first year		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
<input type="checkbox"/> Month 1	Date:	
<input type="checkbox"/> Month 2	Date:	
<input type="checkbox"/> Month 3	Date:	
<input type="checkbox"/> Month 4	Date:	
<input type="checkbox"/> Month 5	Date:	
<input type="checkbox"/> Month 6	Date:	
<input type="checkbox"/> Month 7	Date:	
<input type="checkbox"/> Month 8	Date:	
<input type="checkbox"/> Month 9	Date:	
<input type="checkbox"/> Month 10	Date:	
<input type="checkbox"/> Month 11	Date:	
<input type="checkbox"/> Month 12	Date:	
Spring and Fall		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
One year after commissioning and every third year following		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
<input type="checkbox"/> Year 1	Date:	
<input type="checkbox"/> Year 4	Date:	
<input type="checkbox"/> Year 7	Date:	
<input type="checkbox"/> Year 10	Date:	
<input type="checkbox"/> Year 13	Date:	
<input type="checkbox"/> Year 16	Date:	
<input type="checkbox"/> Year 19	Date:	
<input type="checkbox"/> Year 22	Date:	

Major Maintenance

Frequency		Action
Inlets and Outlets	Every 3 years	
	Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.	
	Notes	
	<input type="checkbox"/> Year 1	Date:
	<input type="checkbox"/> Year 4	Date:
	<input type="checkbox"/> Year 7	Date:
	<input type="checkbox"/> Year 10	Date:
	<input type="checkbox"/> Year 13	Date:
	<input type="checkbox"/> Year 16	Date:
	<input type="checkbox"/> Year 19	Date:
	<input type="checkbox"/> Year 22	Date:
	Spring and Fall	
	Check inlet and outlets for clogging and remove any debris, as required.	
	Notes	
	<input type="checkbox"/> Spring	Date:
	<input type="checkbox"/> Fall	Date:
	<input type="checkbox"/> Spring	Date:
	<input type="checkbox"/> Fall	Date:
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
<input type="checkbox"/> Spring	Date:	
<input type="checkbox"/> Fall	Date:	
CULTEC Stormwater Chambers	2 years after commissioning	
	<input type="checkbox"/> Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. <input type="checkbox"/> Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.	
Notes		
<input type="checkbox"/> Year 2	Date:	

Major Maintenance

Frequency		Action	
CULTEC Stormwater Chambers	9 years after commissioning every 9 years following		
	<ul style="list-style-type: none"> <input type="checkbox"/> Clean stormwater management chambers and feed connectors of any debris. <input type="checkbox"/> Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. <input type="checkbox"/> Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended. 		
	Notes		
	<input type="checkbox"/> Year 9	Date:	
	<input type="checkbox"/> Year 18	Date:	
	<input type="checkbox"/> Year 27	Date:	
	<input type="checkbox"/> Year 36	Date:	
45 years after commissioning			
<ul style="list-style-type: none"> <input type="checkbox"/> Clean stormwater management chambers and feed connectors of any debris. <input type="checkbox"/> Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. <input type="checkbox"/> Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. <input type="checkbox"/> Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. <input type="checkbox"/> Attain the appropriate approvals as required. <input type="checkbox"/> Establish a new operation and maintenance schedule. 			
Notes			
<input type="checkbox"/> Year 45	Date:		

Major Maintenance

Frequency		Action	
Surrounding Site	Monthly in 1st year		
	<input type="checkbox"/> Check for depressions in areas over and surrounding the stormwater management system.		
	Notes		
	<input type="checkbox"/> Month 1	Date:	
	<input type="checkbox"/> Month 2	Date:	
	<input type="checkbox"/> Month 3	Date:	
	<input type="checkbox"/> Month 4	Date:	
	<input type="checkbox"/> Month 5	Date:	
	<input type="checkbox"/> Month 6	Date:	
	<input type="checkbox"/> Month 7	Date:	
	<input type="checkbox"/> Month 8	Date:	
	<input type="checkbox"/> Month 9	Date:	
	<input type="checkbox"/> Month 10	Date:	
	<input type="checkbox"/> Month 11	Date:	
	<input type="checkbox"/> Month 12	Date:	
	Spring and Fall		
	<input type="checkbox"/> Check for depressions in areas over and surrounding the stormwater management system.		
	Notes		
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	<input type="checkbox"/> Spring	Date:	
	<input type="checkbox"/> Fall	Date:	
	Yearly		
	<input type="checkbox"/> Confirm that no unauthorized modifications have been performed to the site.		
Notes			
<input type="checkbox"/> Year 1	Date:		
<input type="checkbox"/> Year 2	Date:		
<input type="checkbox"/> Year 3	Date:		
<input type="checkbox"/> Year 4	Date:		
<input type="checkbox"/> Year 5	Date:		
<input type="checkbox"/> Year 6	Date:		
<input type="checkbox"/> Year 7	Date:		

High Capacity (HC) Kraken[®] Filter Operation & Maintenance Manual



HIGH CAPACITY KRAKEN OPERATION & MAINTENANCE MANUAL

TABLE OF CONTENTS

Overview	3
Safety Notice and Personal Safety Equipment	4
High Capacity Kraken Components List.....	5
Inspection Summary & Equipment List	6
Inspection and Maintenance Notes.....	7
Inspection Process	7
Maintenance Indicators.....	8
Maintenance Summary & Equipment List.....	8
Maintenance Instructions.....	10
Replacement Kraken Cartridges.....	12
Notes	13
Inspection & Maintenance Report.....	14

OVERVIEW

This operation and maintenance (O&M) manual is for the High Capacity (HC) Kraken system. Please read the instructions and equipment lists closely prior to starting. It is important to follow all necessary safety procedures associated with state and local regulations. Please contact Contech for more information on pre-authorized third-party service providers who can provide inspection and maintenance services in your area or visit www.conteches.com/maintenance.



WARNING

Confined space entry may be required. Contractor to obtain all equipment and training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to always proceed safely.

SAFETY NOTICE AND PERSONAL SAFETY EQUIPMENT

Job site safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s), and Service Provider(s). OSHA and Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Service Provider's responsibility and outside the scope of Contech Engineered Solutions.



Safety Boots



Gloves



Hard Hat



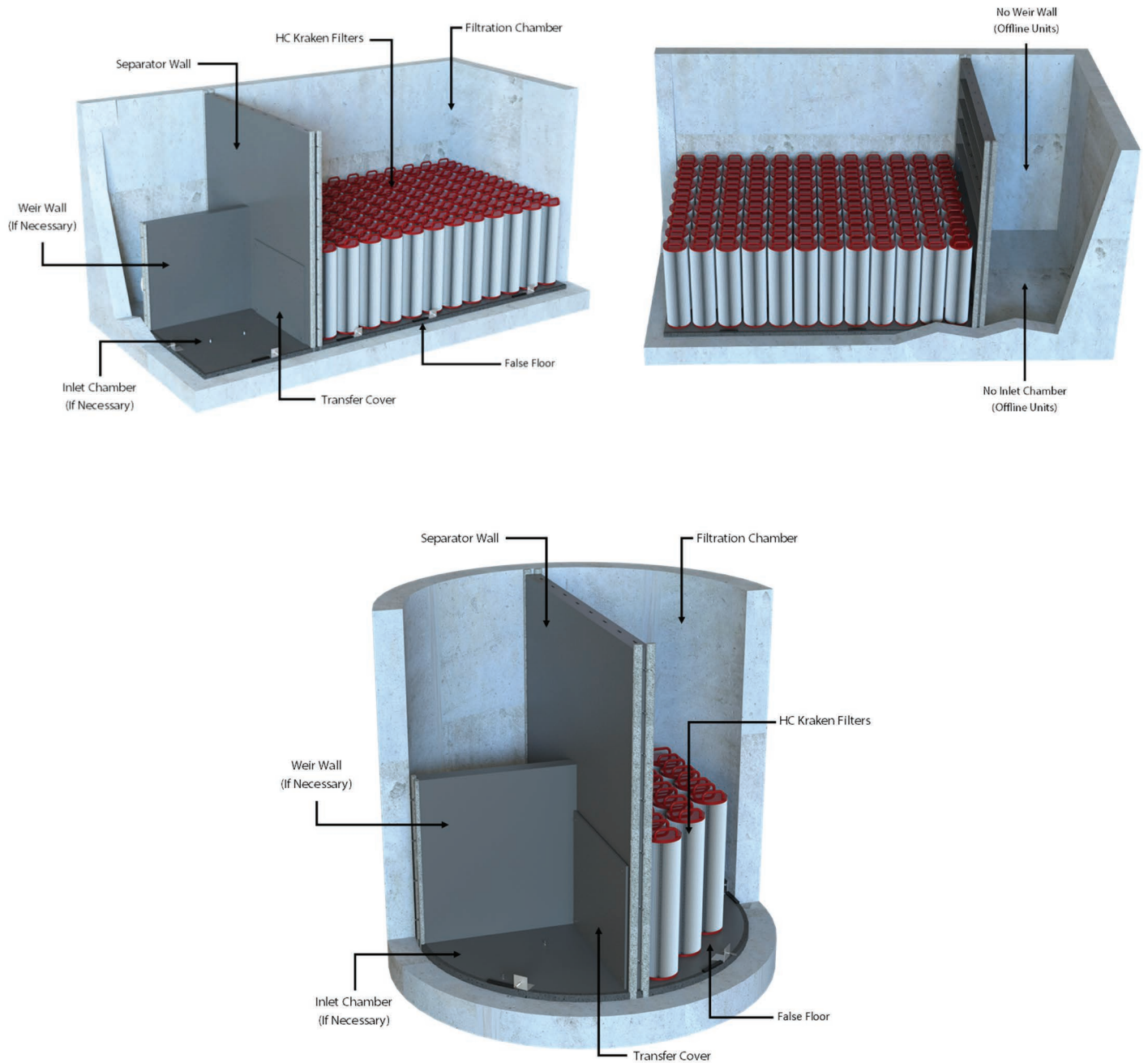
Eye Protection



Maintenance and Protection
of Traffic Plan

HIGH CAPACITY KRAKEN COMPONENTS LIST

The HC Kraken system comes in multiple configurations, including both Peak Diversion and offline vault units as well as manhole units. The components per the shop drawings (plans) typically include:



INSPECTION SUMMARY & EQUIPMENT LIST

Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site-specific loading conditions. This is recommended because pollutant loading and pollutant characteristics can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding on roads, amount of daily traffic and land use can increase pollutant loading on the system. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided. Without appropriate maintenance, a BMP will exceed its storage capacity which can affect its continued performance in removing and retaining captured pollutants.

- Average inspection time is approximately 15 minutes. Always ensure appropriate safety protocol and procedures are followed.

The following is a list of equipment required to allow for simple and effective inspection of the HC Kraken:



Contech HC Kraken
Inspection Form



Flashlight



Tape Measure/Measuring
Pole



Access Cover Hook

INSPECTION AND MAINTENANCE NOTES

1. Following maintenance and/or inspection, it is recommended that the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics, and sediments to approved facility for disposal in accordance with local and state requirements.
4. The HC Kraken can be inspected through visual observation without entry into the system. Maintenance requires entry into the system, which may require confined space training based on state and local regulations.
5. All necessary pre-inspection steps must be carried out before inspection occurs, especially traffic control and other safety measures to protect the inspector and nearby pedestrians from any dangers associated with an open access hatch or manhole.

INSPECTION PROCESS

1. Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
2. Observe the inside of the system through the access hatches/covers. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all its chambers.
3. Look for any out of the ordinary obstructions in the inflow pipe, inlet chamber (if applicable), filtration chamber, discharge chamber, or outflow pipe. Write down any observations on the inspection form.
4. Through observation and/or digital photographs, estimate the amount of trash and debris accumulated in the inlet chamber (if applicable). Utilizing a tape measure or measuring pole, estimate the amount of sediment accumulated in the inlet chamber (if applicable). Record this depth on the inspection form.
5. Through observation and/or digital photographs, inspect the condition of the filter cartridges. Look for excessive buildup of sediments on the surface and any buildup on top of the cartridges. Utilizing a tape measure or measuring pole, estimate the amount of sediment accumulated in the filtration chamber. Record this information on the inspection form.
6. Finalize the inspection report for analysis by the maintenance manager to determine if maintenance is required.

MAINTENANCE INDICATORS

After inspection is complete, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges
- Obstructions in the system or its inlet or outlet
- Accumulation of floatables and/or sediment in the inlet chamber (if applicable) obstructing the transfer opening
- Accumulation of sediment in the filtration chamber of more than 4" on average
- Substantial buildup of sediments on the filter membrane of the filter cartridges or $>1/4$ " build up on top of cartridges, which will have a very dark appearance indicating that the membrane may be fully saturated with sediment

MAINTENANCE SUMMARY & EQUIPMENT LIST

The time has come to maintain your HC Kraken system. It is recommended that maintenance occurs at least three days after the most recent rain event to allow for drain down of the system and any upstream detention systems designed to drain down over an extended period of time. Maintaining the system while flows are still entering it will increase the time and complexity required for maintenance. All necessary pre-maintenance steps must be carried out before maintenance occurs. Once traffic control has been set up per local and state regulations and access hatches and/or covers have been safely opened, the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition, the following is recommended:

- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and maintenance equipment.
- Ensure traffic control is set up and properly positioned.
- Prepared pre-checks (OSHA, safety, confined space entry) are performed.
 - A gas meter should be used to detect the presence of any hazardous gases prior to entering the system. If hazardous gases are present, do not enter the vault/manhole. Following appropriate confined space procedures, take steps, such as utilizing a venting system, to address the hazard. Once it is determined to be safe, enter the system utilizing appropriate entry equipment such as a ladder and tripod with harness.

The following is a list of equipment required for maintenance of the HC Kraken:



Contech HC Kraken
Maintenance Form



Flashlight



Access Cover Hook

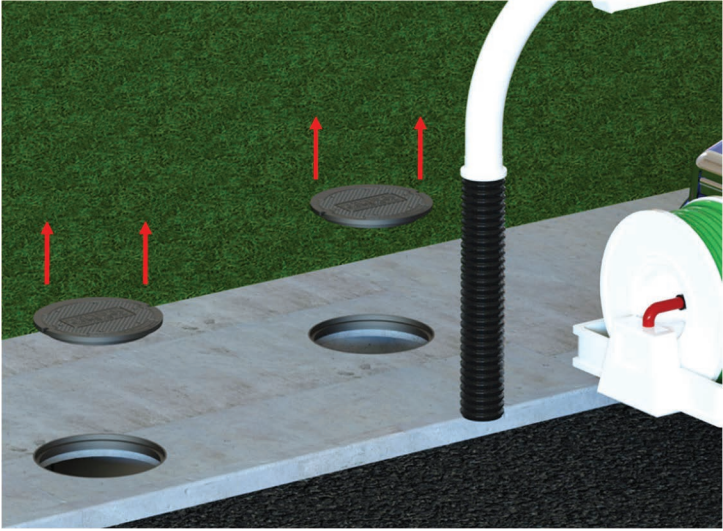


Trash Can



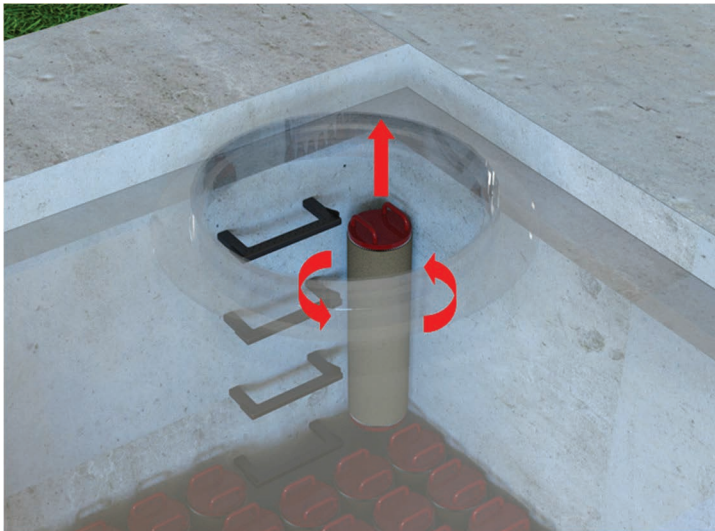
Vacuum Assisted Truck with
Pressure Washer

MAINTENANCE INSTRUCTIONS



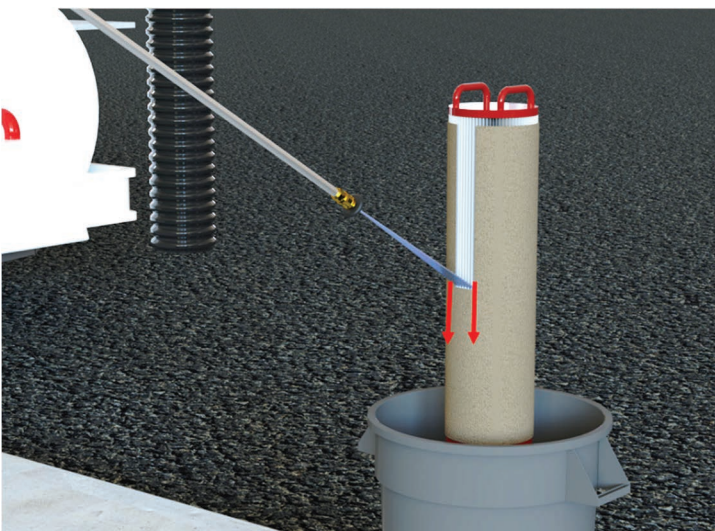
1. ACCESS HATCH/COVER REMOVAL

Upon determining that the vault/manhole is safe for entry, remove all access hatches and/or covers to enter the system. The maintenance technician should position themselves to stand in the treatment chamber. From here, the removal of the cartridges can commence.



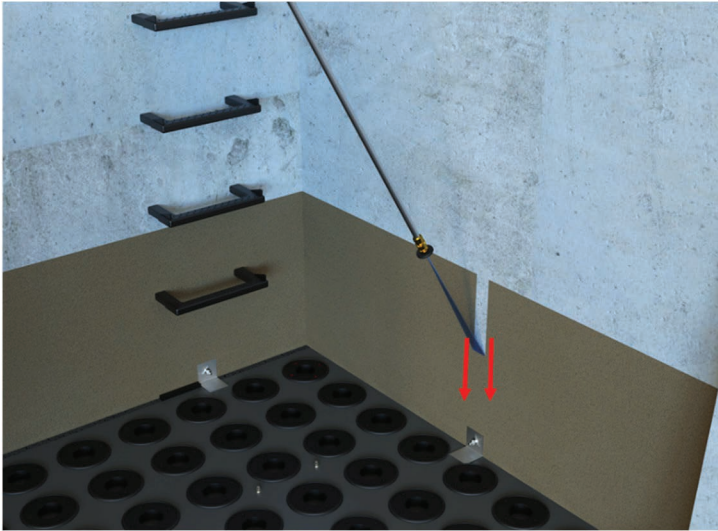
2. CARTRIDGE REMOVAL

These cartridges utilize a quarter-turn coupling. To remove a cartridge, simply grab the handles at the top of the cartridge, twist left to unlock the quarter-turn, and pull straight up. Removal of the cartridges should be done by hand with minimal effort and requires no tools.



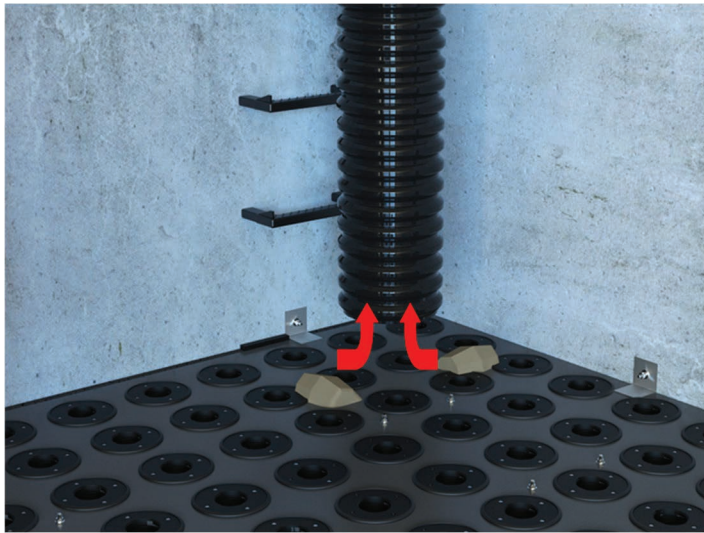
3. CARTRIDGE WASHING

Once the cartridges have all been removed, they should be lifted out of the vault/manhole and brought up to finish surface for cleaning. Using a large garbage can and the pressure washer from the vacuum truck (with low pressure nozzle, max 50 psi), each cartridge should be rinsed off from the outside to remove accumulated sediments and debris. For cartridges with heavy sedimentation caked on the filter membrane, fill up the garbage can with water and dunk the filter prior to pressure washing it. This dunking will help loosen sediment and debris. Cartridges should be washed over the trash can to contain all sediment accumulated on the cartridges. Set aside each cartridge once it is rinsed.



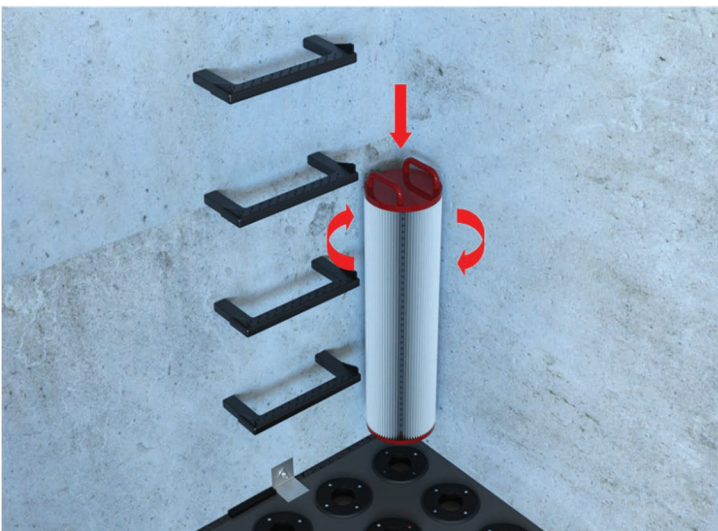
4. PRESSURE WASH SYSTEM CHAMBERS

Using the pressure washer, spray down larger pollutants accumulated on the walls of the inlet chamber (if applicable), filtration chamber, and discharge chamber. Be sure to wash down the separator wall and weir wall (if applicable).



5. VACUUM SYSTEM CHAMBERS

Vacuum out any sediment washed loose during **Step 4** in all chambers of the system. Be sure to vacuum the floor until the floor of each chamber is visible and clean. All removed debris and pollutants shall be disposed of following local and state requirements.



6. CARTRIDGE RE-INSTALLATION

After all cartridges have been washed at surface level and each chamber of the system has been properly cleaned, they can be replaced back into the vault/manhole. To do so, simply line up the quarter-turn tabs with the cutouts in the couplers on the floor, push the filter down, and twist right until the cartridges lock in place. Once properly locked in, the bottom of the cartridge should be flush with the top of the coupler. If experiencing difficulty, O-ring lubricant can be applied to gasket at the base of the cartridge prior to insertion. Exit the system and replace all access hatches and/or covers.

REPLACEMENT KRAKEN CARTRIDGES

As with all membrane filtration systems, at some point the cartridges will need to be replaced due to physical wear and tear. In the event that visible wear and tear of the membrane is observed during the inspection process, and it is determined that a cartridge must be replaced, contact one of Contech's Maintenance Team members at <https://www.conteches.com/maintenance> to order a replacement cartridge.

Inspection and Maintenance Report High Capacity Kraken Filter

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone () - _____

Inspector Name _____ Date ____ / ____ / ____ Time _____ AM / PM

Type of Inspection Routine Follow Up Complaint Storm Storm Event in Last 72-hours? No Yes

Weather Condition _____ Additional Notes _____

For Office Use Only

(Reviewed By) _____

(Date) _____
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Vault	Model #	Sediment Accumulation Sedimentation Chambers (lbs) & Filter Chambers (lbs)	Condition of Filter Cartridges & Were Filter Cartridges Cleaned	Structural Notes	Operational Per Manufactures' Specifications (If not, why?)
	Lat: _____ Long: _____					
	Lat: _____ Long: _____					
	Lat: _____ Long: _____					

Comments: _____



CONTECH[®] ENGINEERED SOLUTIONS

© 2024 CONTECH ENGINEERED SOLUTIONS LLC, A QUIKRETE COMPANY

800-338-1122

WWW.CONTECHES.COM

ALL RIGHTS RESERVED. PRINTED IN THE USA.

CONTECH ENGINEERED SOLUTIONS LLC PROVIDES SITE SOLUTIONS FOR THE CIVIL ENGINEERING INDUSTRY. CONTECH'S PORTFOLIO INCLUDES BRIDGES, DRAINAGE, SANITARY SEWER, STORMWATER AND EARTH STABILIZATION PRODUCTS. FOR INFORMATION ON OTHER CONTECH DIVISION OFFERINGS, VISIT CONTECHES.COM OR CALL 800-338-1122.

SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

HC Kraken Maintenance Guide 6/24

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS A WARRANTY. APPLICATIONS SUGGESTED HEREIN ARE DESCRIBED ONLY TO HELP READERS MAKE THEIR OWN EVALUATIONS AND DECISIONS, AND ARE NEITHER GUARANTEES NOR WARRANTIES OF SUITABILITY FOR ANY APPLICATION. CONTECH MAKES NO WARRANTY WHATSOEVER, EXPRESS OR IMPLIED, RELATED TO THE APPLICATIONS, MATERIALS, COATINGS, OR PRODUCTS DISCUSSED HEREIN. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE ARE DISCLAIMED BY CONTECH. SEE CONTECH'S CONDITIONS OF SALE (AVAILABLE AT WWW.CONTECHES.COM/COS) FOR MORE INFORMATION.