



## Public Services

Engineering  
212 Operations Center Drive  
Wilmington, NC 28412  
910 341-7807  
910 341-5881 fax  
wilmingtonnc.gov  
Dial 711 TTY/Voice

January 24, 2018

Mr. Mike Brown  
The Vault on 17<sup>th</sup>, LLC  
1051 Military Cutoff Road, Suite 200  
Wilmington, NC 28405

**Subject: Stormwater Management Permit No. 2017023R2  
The Vault on 17th  
High Density Development**

Dear Mr. Brown:

The City of Wilmington Engineering Division has received a request for a revision to the Stormwater Management Permit for The Vault on 17th. Having reviewed the application and all supporting materials, the City of Wilmington has determined that the proposed revision meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

The revisions include:

Relocation of the infiltration trench system outfall from the stormdrain system in the 17<sup>th</sup> Street right-of-way to the natural drainage low area in the rear of the property. No impervious revisions were made with this modification.

Please be aware all terms and conditions of the permit Issued on June 22, 2017 remain in full force and effect. Any additional changes to the approved plans must be approved by this office prior to construction. The issuance of the plan revision does not preclude the permittee from complying with all other applicable statutes, rules, regulations or ordinances which may have jurisdiction over the proposed activity, and obtaining a permit or approval prior to construction.

The revised stamped, approved stormwater management drawings will be released for construction by the Wilmington Planning Division under separate cover. Please replace any old plan sheets from the approved set with the new, revised sheet. An electronic copy of the approved drawing set, permit, application and supplementary documents will be maintained by the Wilmington Engineering Division. If you have any questions, or need additional information, please contact Richard Christensen at (910) 341-7813 or richard.christensen@wilmingtonnc.gov

Sincerely,

for Sterling Cheatham, City Manager  
City of Wilmington

cc: Branch Smith, PE, Paramounte Engineering, Inc.  
Jeff Walton, Associate Planner, City of Wilmington

**Public Services**

Engineering  
414 Chestnut St, Suite 200  
Wilmington, NC 28401  
910 341-7807  
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## STORMWATER MANAGEMENT PERMIT APPLICATION FORM (Form SWP 2.2)

### I. GENERAL INFORMATION

1. Project Name (subdivision, facility, or establishment name - should be consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):

The Vault on 17th

2. Location of Project (street address):

1113 S. 17th Street

City: Wilmington

County: New Hanover

Zip: 28403

3. Directions to project (from nearest major intersection):

The site is across Martsellar and 17th St along 17th Street until the Railroad Crossing

### II. PERMIT INFORMATION

1. Specify the type of project (check one): ☐ Low Density ☒ High Density  
☐ Drains to an Offsite Stormwater System ☐ Drainage Plan ☐ Other  
If the project drains to an Offsite System, list the Stormwater Permit Number(s):

City of Wilmington: \_\_\_\_\_ State – NCDENR/DWQ: \_\_\_\_\_

2. Is the project currently covered (whole or in part) by an existing City or State (NCDENR/DWQ) Stormwater Permit? ☐ Yes ☒ No

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: \_\_\_\_\_ State – NCDENR/DWQ: \_\_\_\_\_

3. Additional Project Permit Requirements (check all applicable):

☐ CAMA Major ☒ Sedimentation/Erosion Control

☐ NPDES Industrial Stormwater ☐ 404/401 Permit: Proposed Impacts: \_\_\_\_\_

If any of these permits have already been acquired please provide the Project Name, Project/Permit Number, issue date and the type of each permit:

### III. CONTACT INFORMATION

1. Print Applicant / Signing Official's name and title (specifically the developer, property owner, lessee, designated government official, individual, etc. who owns the project):

Applicant / Organization: The Vault on 17th, LLC

Signing Official & Title: Mike Brown

- a. Contact information for Applicant / Signing Official:

Street Address: 1051 Military Cutoff Road, Suite 200

City: Wilmington State: NC Zip: 28405

Phone: 910-344-1010 Fax: \_\_\_\_\_ Email: mike@capefearcommercial.com

Mailing Address (if different than physical address): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

- b. Please check the appropriate box. The applicant listed above is:

- ☒ The property owner (Skip to item 3)  
☐ Lessee\* (Attach a copy of the lease agreement and complete items 2 and 2a below)  
☐ Purchaser\* (Attach a copy of the pending sales agreement and complete items 2 and 2a below)  
☐ Developer\* (Complete items 2 and 2a below.)

2. Print Property Owner's name and title below, if you are the lessee, purchaser, or developer. (This is the person who owns the property that the project is on.)

Property Owner / Organization: \_\_\_\_\_

Signing Official & Title: \_\_\_\_\_

- a. Contact information for Property Owner:

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Mailing Address (if different than physical address): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

3. (Optional) Print the name and title of another contact such as the project's construction supervisor or another person who can answer questions about the project:

Other Contact Person / Organization: \_\_\_\_\_

Signing Official & Title: \_\_\_\_\_

a. Contact information for person listed in item 3 above:

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Mailing Address (if different than physical address): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

#### IV. PROJECT INFORMATION

1. In the space provided below, briefly summarize how the stormwater runoff will be treated.

Stormwater runoff will be treated utilizing a piped network of perforated storm drainage pipe encased in stone trench so that runoff is infiltrated. Larger volumes are bypassed to the 17th St. storm network.

2. Total Property Area: 170,628 square feet

3. Total Coastal Wetlands Area: \_\_\_\_\_ square feet

4. Total Surface Water Area: \_\_\_\_\_ square feet

5. Total Property Area (2) – Total Coastal Wetlands Area (3) – Total Surface Water Area (4) = Total Project Area: 170,628 square feet.

6. Existing Impervious Surface within Property Area: 0 square feet

7. Existing Impervious Surface to be Removed/Demolished: 0 square feet

8. Existing Impervious Surface to Remain: 0 square feet

9. Total Onsite (within property boundary) Newly Constructed Impervious Surface (*in square feet*):

Buildings/Lots	76,260
Impervious Pavement	49,925
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	500
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Future Development	
<b>Total Onsite Newly Constructed Impervious Surface</b>	<b>126,685</b>

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 126,685 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 74 %

12. Total Offsite Newly Constructed Impervious Area (improvements made outside of property boundary, in square feet):

Impervious Pavement	625
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
<b>Total Offsite Newly Constructed Impervious Surface</b>	<b>625</b>

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 127310 square feet

14. Complete the following information for each Stormwater BMP drainage area. If there are more than three drainage areas in the project, attach an additional sheet with the information for each area provided in the same format as below. Low Density projects may omit this section and skip to Section V.

Basin Information	Infiltration Trench BMP # 1	BMP #	BMP #
Receiving Stream Name	Greenfield Lake		
Receiving Stream Index Number	18-76-1		
Stream Classification	C;Sw		
Total Drainage Area (sf)	127310	0	0
On-Site Drainage Area (sf)	127310		
Off-Site Drainage Area (sf)			
<b>Total Impervious Area (sf)</b>	127310	0	0
Buildings/Lots (sf)	76260		
Impervious Pavement (sf)	49925		
Pervious Pavement, % credit (sf)			
Impervious Sidewalks (sf)	500		
Pervious Sidewalks, % credit (sf)			
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)	625		
Percent Impervious Area (%)	100 %		

15. How was the off-site impervious area listed above determined? Provide documentation:

Driveway inside City ROW



## V. SUBMITTAL REQUIREMENTS

1. Supplemental and Operation & Maintenance Forms - One applicable City of Wilmington Stormwater BMP supplement form and checklist must be submitted for **each** BMP specified for this project. One applicable proposed operation and maintenance (O&M) form must be submitted for **each type** of stormwater BMP. Once approved, the operation and maintenance forms must be referenced on the final plat and recorded with the register of deeds office.
2. Deed Restrictions and Restrictive Covenants - For all subdivisions, outparcels, and future development, the appropriate property restrictions and protective covenants are required to be recorded prior to the sale of any lot. Due to variability in lot sizes or the proposed BUA allocations, a table listing each lot number, lot size, and the allowable built-upon area must be provided as an attachment to the completed and notarized deed restriction form. The appropriate deed restrictions and protective covenants forms can be downloaded at the link listed in section V (3). Download the latest versions for each submittal.

In instances where the applicant is different than the property owner, it is the responsibility of the property owner to sign the deed restrictions and protective covenants form while the applicant is responsible for ensuring that the deed restrictions are recorded.

**By the notarized signature(s) below, the permit holder(s) certify that the recorded property restrictions and protective covenants for this project, if required, shall include all the items required in the permit and listed on the forms available on the website, that the covenants will be binding on all parties and persons claiming under them, that they will run with the land, that the required covenants cannot be changed or deleted without concurrence from the City of Wilmington, and that they will be recorded prior to the sale of any lot.**

3. Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed on the City Engineering Plan Review Checklist, including the fee. Copies of the Engineering Plan Review Checklist, all Forms, Deed Restrictions as well as detailed instructions on how to complete this application form may be downloaded from:

<http://www.wilmingtonnc.gov/PublicServices/Engineering/PlanReview/StormwaterPermits.aspx>

The complete application package should be submitted to the following address:

City of Wilmington – Engineering  
Plan Review Section  
414 Chestnut Street, Suite 200  
Wilmington, NC 28402

**RECEIVED**

**MAR 29 2017**

**ENGINEERING**

## VI. CONSULTANT INFORMATION AND AUTHORIZATION

1. Applicant: Complete this section if you wish to designate authority to another individual and/or firm (such as a consulting engineer and /or firm) so that they may provide information on your behalf for this project (such as addressing requests for additional information).

Consulting Engineer: Branch Smith, PE

Consulting Firm: Paramounte Engineering, Inc.

- a. Contact information for consultant listed above:

Mailing Address: 122 Cinema Drive

City: Wilmington State: NC Zip: 28403

Phone: 910-791-6707 Fax: \_\_\_\_\_ Email: bsmith@paramounte-eng.com

## VII. PROPERTY OWNER AUTHORIZATION (If Section III(2) has been filled out, complete this section)

I, *(print or type name of person listed in Contact Information, item 2)* \_\_\_\_\_, certify that I own the property identified in this permit application, and thus give permission to *(print or type name of person listed in Contact Information, item 1)* \_\_\_\_\_ with *(print or type name of organization listed in Contact Information, item 1)* \_\_\_\_\_ to develop the project as currently proposed. A copy of the lease agreement or pending property sales contract has been provided with the submittal, which indicates the party responsible for the operation and maintenance of the stormwater system.

As the legal property owner I acknowledge, understand, and agree by my signature below, that if my designated agent *(entity listed in Contact Information, item 1)* dissolves their company and/or cancels or defaults on their lease agreement, or pending sale, responsibility for compliance with the City of Wilmington Stormwater Permit reverts back to me, the property owner. As the property owner, it is my responsibility to notify the City of Wilmington immediately and submit a completed Name/Ownership Change Form within 30 days; otherwise I will be operating a stormwater treatment facility without a valid permit. I understand that the operation of a stormwater treatment facility without a valid permit is a violation of the City of Wilmington Municipal Code of Ordinances and may result in appropriate enforcement including the assessment of civil penalties.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

SEAL

I, \_\_\_\_\_, a Notary Public for the State of \_\_\_\_\_, County of \_\_\_\_\_, do hereby certify that \_\_\_\_\_ personally appeared before me this day of \_\_\_\_\_, \_\_\_\_\_, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

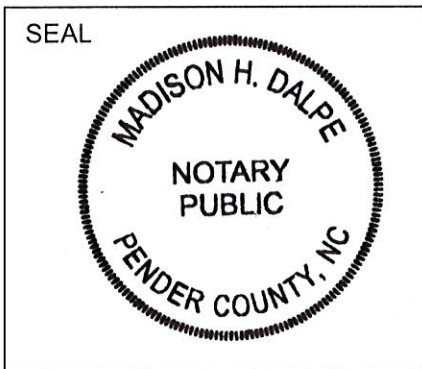
My commission expires: \_\_\_\_\_



**VIII. APPLICANT'S CERTIFICATION**

I, (print or type name of person listed in Contact Information, item 1) , MIKE BROWN certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under.

Signature: Michael Date: 3. 24.17



I, Madison H. Dalpe, a Notary Public for the State of North Carolina County of Pender, do hereby certify that Mike Brown personally appeared before me this day of 24<sup>th</sup> March 2017 and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,  
Madison H. Dalpe  
My commission expires: 09/07/2021

**RECEIVED**

**MAR 29 2017**

**ENGINEERING**



	Quantity	Location(s)
Infiltration System	1	1113 S. 17th St, Wilmington NC
Bioretention Cell		
Wet Pond		
Stormwater Wetland		
Permeable Pavement		
Sand Filter		
Rainwater Harvesting		
Green Roof		
Level Spreader-Filter Strip		
Disconnected Impervious Surface		
Treatment Swale		
Dry Pond		

## The Vault on 17th

1113 S. 17th Street

Wilmington, NC 28403

**Applicant:**

Name and Title:	Branch Smith, PE
Organization:	Paramounte Engineering
Street address:	122 Cinema Dr
City, State, Zip:	Wilmington NC 28405
Phone number(s):	910.791.6707
Email:	bsmith@paramounte-eng.com

Company:	The Vault on 17th, LLC
Contact:	Mike Brown
Mailing Address:	1051 Military Cutoff Rd, Suite 200
City, State, Zip:	Wilmington, NC 28405
Phone number(s):	910-344-1010
Email:	mike@capefearcommercial.com

**Certification Statement:**

I certify, under penalty of law: that this Supplement-EZ form and all supporting information were prepared under my direction or supervision:

- that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations as well as a report being made to my professional board.

  
Signature of Designer

Signature of Designer

5-5-17

Date

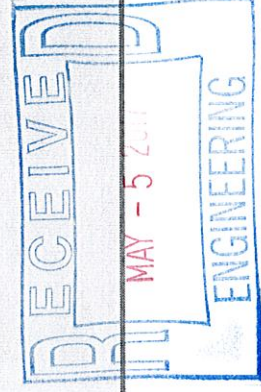
8:31 AM 5/5/2017



# INFILTRATION SYSTEMS

The Vault on 17th

THE DRAINAGE AREA		DA 1	Break down of BUA in the drainage area (both new and existing):	
Drainage area number		sf	- Parking / driveway (sq ft)	50550 sf
Total coastal wetlands area (sq ft)		sf	- Sidewalk (sq ft)	500 sf
Total surface water area (sq ft)		127310 sf	- Roof (sq ft)	76260 sf
Total drainage area (sq ft)		sf	- Roadway (sq ft)	
BUA associated with existing development (sq ft)		127310 sf	- Other, please specify in the comment box below (sq ft)	
Proposed new BUA (sq ft)		100%	<b>Total BUA (sq ft)</b>	127310 sf
Percent BUA of drainage area				
<b>COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM</b>				
Stormwater program(s) that apply (please specify):				
NC Coastal Rules				
<b>GENERAL MDC FROM 02H .1050</b>				
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	Yes	
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the maintenance access comply with General MDC (8)?	Yes	
#3 What are the side slopes of the SCM (H:V)?	NA	#9 Does the drainage easement comply with General MDC (9)?	Yes	
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	Yes	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes	
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes	
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes	
<b>INFILTRATION SYSTEM MDC FROM 02H .1051</b>				
#1 SHWT elevation (fmsl)	36 ft	#5 Length (ft)	2310 ft	
#1 Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	#5 Width (ft)	53 ft	
#1 Soil infiltration rate (in/hr)	10.0 in/hr	#5 Depth/Height (ft)	48 ft	
#1 Briefly describe the hydraulic properties and characteristics of the soil profile: Type A soils. See Soils Report and Web Soil Survey		#5 Surface area of the bottom of the infiltration system (sq feet)	12279 sf	
		#5 Ponding depth of the design volume (in)	31 in	
		#5 Estimated dewatering time (hours)	5 hrs	
		#5 For trenches only: Perforated pipe diameter, if applicable (inches)	30 in	
#2 SHWT elevation (fmsl)	36 ft	#5 For trenches only: Number of laterals	2	
#2 Bottom of the infiltration system (fmsl)	38 ft	#5 For trenches only: Stone type, if applicable	Washed 57	
#2 Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	No	#5 For trenches only: Stone void ratio (%)	40%	
#3 Proposed slope of the subgrade surface (%)	0%	#5 For trenches only: Is stone free of fines?	Yes	
#3 Are terraces or baffles provided?	No	#5 For trenches only: Is the stone wrapped in geotextile fabric?	Yes	
#4 Describe the pretreatment that will be provided:		#6 Is the infiltration system located underground?	Yes	
Sumps in Drop Inlets		#6 If so, has at least one infiltration port been provided?	Yes	
<b>ADDITIONAL INFORMATION</b>				
Please use this space to provide any information about this infiltration system that you think is relevant to the review: See Narrative and Calcs				





# Operation & Maintenance Agreement

**Project Name:** The Vault on 17th  
**Project Location:** 1101 S. 17th St, Wilmington, NC 28405

## Cover Page

Maintenance records shall be kept on the following BMP(s). This maintenance record shall be kept in a log in a known set location. Any deficient BMP elements noted in the inspection will be corrected, repaired, or replaced **immediately**. These deficiencies can affect the integrity of structures, safety of the public, and the pollutant removal efficiency of the BMP(s).

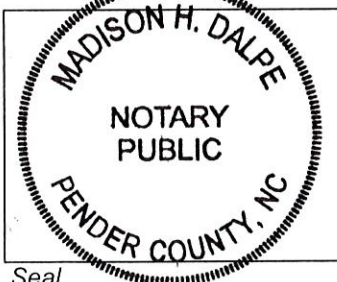
The BMP(s) on this project include (check all that apply & corresponding O&M tables will be added automatically):

Bioretention Cell	Quantity:		Location(s):	
Dry Detention Basin	Quantity:		Location(s):	
Grassed Swale	Quantity:		Location(s):	
Green Roof	Quantity:		Location(s):	
Infiltration Basin	Quantity:		Location(s):	
Infiltration Trench	Quantity:	1	Location(s):	On site AROUND BLDG IN PARKING DRIVE
Level Spreader/VFS	Quantity:		Location(s):	
Permeable Pavement	Quantity:		Location(s):	
Proprietary System	Quantity:		Location(s):	
Rainwater Harvesting	Quantity:		Location(s):	
Sand Filter	Quantity:		Location(s):	
Stormwater Wetland	Quantity:		Location(s):	
Wet Detention Basin	Quantity:	0	Location(s):	
Disconnected Impervious Area	Present:	No	Location(s):	
User Defined BMP	Present:	No	Location(s):	

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed for each BMP above, and attached O&M tables. I agree to notify NCDENR of any problems with the system or prior to any changes to the system or responsible party.

\* Responsible Party: **The Vault on 17th, LLC / Mike Brown**  
Title & Organization:  
Street address: **1051 Military Cutoff Rd, Suite 200**  
City, state, zip: **Wilmington, NC 28405**  
Phone number(s): **910-344-1010**  
Email: **mike@capefearcommercial.com**

Signature: Michael C Brown III Date: 5.8.17  
I, Madison H. Dalpe, a Notary Public for the State of North Carolina  
County of Pender, do hereby certify that Michael C. Brown III  
personally appeared before me this 8<sup>th</sup> day of May, 2017 and  
acknowledge the due execution of the Operations and Maintenance Agreement.  
Witness my hand and official seal, Madison H. Dalpe



Seal

My commission expires

09/07/2021



## Infiltration System Maintenance Requirements

### Important maintenance procedures:

- The drainage area will be carefully managed to reduce The sediment load to The infiltration basin.
- Immediately after the infiltration basin is established, the vegetation will be watered twice weekly if needed until the plants become established (commonly six weeks).
- No portion of the infiltration basin will be fertilized after the initial fertilization that is required to establish the vegetation.
- The vegetation in and around the basin will be maintained at a height of approximately six inches.

After the infiltration basin is established, it shall be inspected **once a quarter and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)**. Records of operation and maintenance shall be kept in a known set location and shall be available upon request.

Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

BMP element:	Potential problem:	How to remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the infiltration basin	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
The inlet device: pipe or swale	The pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged (if applicable).	Replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
The forebay	Sediment has accumulated and reduced the depth to 75% of the original design depth.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
	Erosion has occurred or riprap is displaced.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticides are used, wipe them on the plants rather than spraying.
The main treatment area	A visible layer of sediment has accumulated.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP. Replace any media that was removed in the process. Revegetate disturbed areas immediately.
	Water is standing more than 5 days after a storm event.	Replace the top few inches of filter media and see if this corrects the standing water problem. If so, revegetate immediately. If not, consult an appropriate professional for a more extensive repair.
	Weeds and noxious plants are growing in the main treatment area.	Remove the plants by hand or by wiping them with pesticide (do not spray).
The embankment	Shrubs or trees have started to grow on the embankment.	Remove shrubs or trees immediately.
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs.
The outlet device	Clogging has occurred.	Clean out the outlet device. Dispose of the sediment off-site.
	The outlet device is damaged	Repair or replace the outlet device.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the local NC Department of Environment and Natural Resources Regional Office.



