



# Qualified Inspection & Maintenance Workshop

City of Chattanooga

Development Resource Center

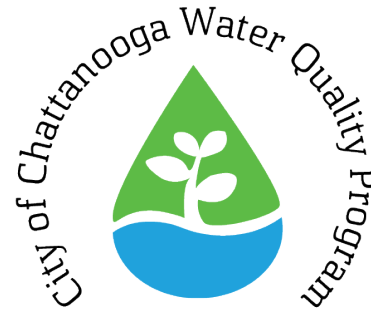
[2022]



# Who We Are

- Water Quality Program

- Mounir Minkara – Water Quality Manager
- Joshua Rogers – Water Quality Supervisor
- Water Quality Specialists
  - Lyn Rutherford
  - Casey Dell
  - Mary Anne Gehrke
  - Youssuf Abdulazeez
  - Mitch Underwood
  - Emily Mathis



# Who Are You?

- Property Owners
- Inspection Companies
- Maintenance Companies
- Engineers
- Landscapers
- Event Crashers
- Other?



# Why Are We All Here

Ordinance No. 13486  
July 23, 2019

## City Code Section 31-314.D. Private Property Owner Responsibilities

- i. The owner(s) of stormwater management facilities and/or SCMs shall ensure their proper operation. All facilities, system components and related components, and all SCMs must be maintained to ensure full functionality per design. The property owner(s) is solely responsible for the cost of maintaining privately-owned facilities and SCMs and this applies to all property types (ie.: residential, commercial, industrial, etc.)
- ii. Property owner(s) shall conduct quarterly (four (4) per year) self- inspections of the stormwater structures to ensure maintenance and continued functionality, per design. Self-inspection records shall be kept, and made available to City inspectors upon request for a minimum of three (3) years. These should include the date of inspection, inspector's name, SCM condition, and general systems conditions and maintenance. (e.g. trash, sediment, erosion, blockages).
- iii. The City Engineer, or his/her designee, shall have the authority to inspect private drainage systems within the City, and to order such corrective actions to said private drainage systems as are necessary to maintain properly the major and minor drainage systems within the City.

# Why Are We All Here

## City Code Section 31-314.D. Private Property Owner Responsibilities

- iv. By January 1, 2020 and before an Inspection and Maintenance Agreement ("Agreement") is approved the property owner(s) must develop at least a two (2) year maintenance contract (in addition to any other maintenance required) (the "Maintenance Contract") and be approved for all Stormwater Control Measures (SCMs) on site with an approved entity. The Maintenance Contract shall contain a detailed scope of inspection and maintenance to be performed by the property owner(s), practices to be maintained, planting plan, if any, timeline of maintenance for each SCM and certified person or company responsible. This scope should come from the SCM Maintenance Plan included with the Agreement.
- v. By January 1, 2021, property owner(s) shall submit any reports for Inspection Maintenance of private SCMs, including Water Quality Fee Reports, to the Water Quality Manager, which shall be signed by a certified inspector with up-to-date certification.

# Why Are We All Here

Due to the acceptable level of compliance seen in the annual reporting from across the City, the requirement of having to attend the City Workshop has been suspended. This policy decision was made October 2022.

Contact the WQP directly if you have questions about reporting requirements.

*TN SCM Training = Certified*

aintenance Workshop



- [www.Chattanooga.gov/waterquality](http://www.Chattanooga.gov/waterquality)
- TN SCM Training
  - “2 day foundation building course for individuals responsible for the inspection and maintenance of permanent stormwater management practices”
  - “aims to build a solid working knowledge of proper operation and maintenance of SCMs”
  - <https://tnstormwatertraining.org/index.asp>



**Each course is a 3 year certification**

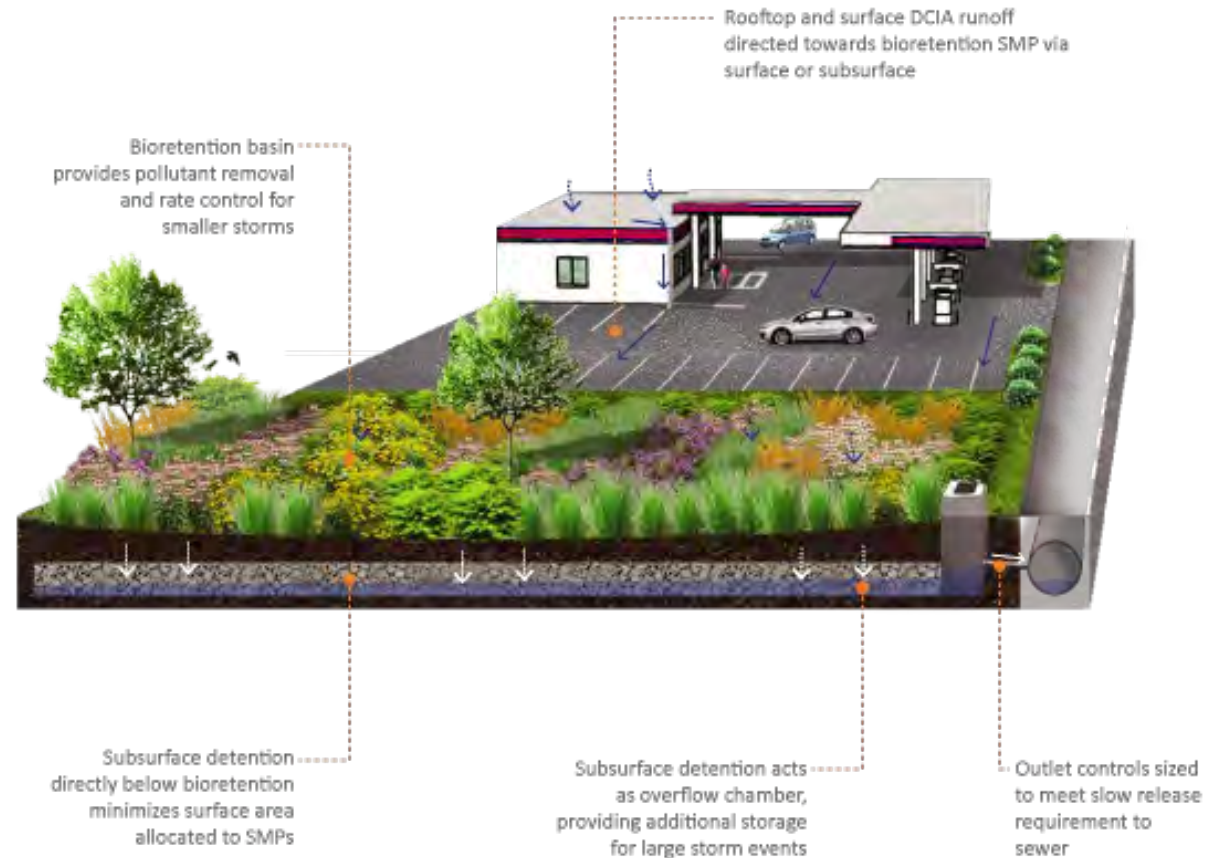
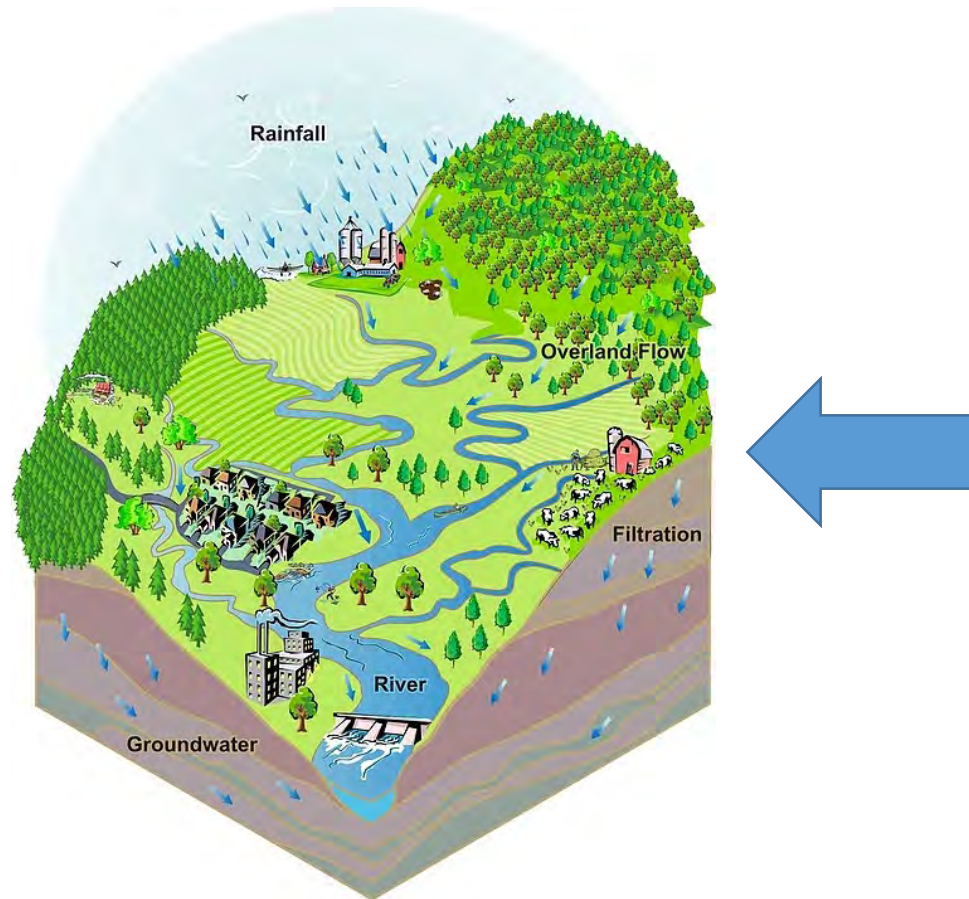
# Why Are We All Here

- Professional “Blue-Green” Community
  - Expectation
    - Property owners should be able to choose from a list of local knowledgeable professionals
  - Formalize
    - Give a definite structure and shape to the IM Program
  - Standardize
    - Recording and Reporting



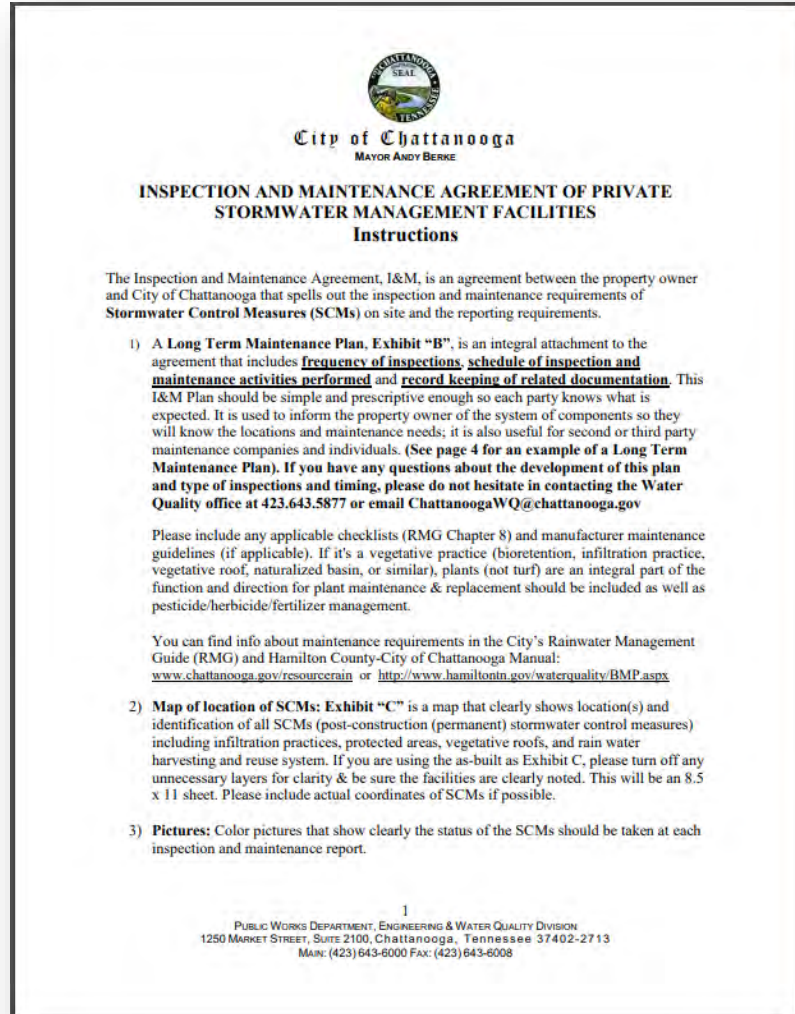
# Why Are We All Here...Really

Water Quality is achieved at the **site level**






# Inspection & Maintenance Agreement



- Legal Requirements
  - Annual: June 30<sup>th</sup> deadline
  - Comprehensive: every 5 years
  - City's right to inspect
  - City's right to maintain & bill
- Exhibits
  - Property Description
  - Long Term Maintenance Plan
  - SCM Map

**Remember the 2 year maintenance contract?  
This is what they'll follow.**

# Inspection & Maintenance Form



**Inspection and Maintenance Form for Stormwater Control Measures (SCMs)**

SCM Name: \_\_\_\_\_  
 (Submit color photographs of this SCM and label them with this SCM name)

Date of This Inspection:	0: Poor condition (Major Maintenance Needed)
Date of Last Inspection:	1: Needs improvement (Moderate Maintenance Needed)
Date of Last Rainfall Event:	2: Acceptable condition (Minimal Maintenance Needed)
Date of Installation:	3: Excellent condition (No Maintenance Needed)
Is there a recorded IM Agreement?    Y    N	SCM status (use numerical rank above):

Describe the maintenance/repair activities performed **since the last inspection date:**  
 (e.g., picked up trash around pond and mowed it weekly; cleaned the surface trash out of the oil skimmer weekly; had the water quality unit cleaned with a vacuum truck on May 8; etc.):

Describe the current condition and any maintenance/repair activities performed **at the time of this inspection:**

Describe the maintenance activities, if any, that need to be performed **before the next inspection:**  
 (e.g., filters need to be replaced in the water reuse system; animal burrows need to be filled in on the retention pond berm; the pervious concrete needs to be swept; the green roof needs to be weeded; etc.):

Inspector Name	
Certification Type & Number	
Signature	
Date	


2

- Check for the most updated form on the City website  
[www.Chattanooga.gov/waterquality](http://www.Chattanooga.gov/waterquality)

- Checklist?
  - ✓ Checklist ≠ IM Form
  - ✓ Can be part of your LT Maint Plan
  - ✓ Can be generic (e.g., RMG checklists)
  - ✓ Or site specific
  - ✓ Adaptable for your use
  - ✓ Do not need to submit to City

# Inspection & Maintenance Form

## Interactive



**Inspection and Maintenance Form for Stormwater Control Measures (SCMs)**

**COVER SHEET**

Quarterly reports must be submitted by **June 30th** of each year. Forms submitted after June 30th will result in the suspension or forfeiture of any fee discounts (see City Code Section 356.1.4). Submit to [ChattanoogaWQ@Chattanooga.gov](mailto:ChattanoogaWQ@Chattanooga.gov) with color photographs.

Does this site have an approved water quality fee discount?    YES    NO

Property Address _____	Parcel ID _____
Owner Name _____	Phone _____
Owner E-mail _____	
Contact Person _____	Phone _____
Contact E-mail _____	
Inspection Company _____	
Company Address _____	
Company Contact _____	Phone _____
Company E-mail _____	

SCM	#	SCM	#
Retention Pond (dry pond)		Constructed Wetland	
Retention Pond (wet pond)		Sand Filter	
Underground Detention		Stream Buffer (square footage)	
Bio-Retention Pond		Street Sweeping (square footage)	
Bio-Retention Swale		Disconnected Impervious Area	
Vegetated Swale		Stormwater Planter Box	
Pervious Pavement		Naturalized Basin	
Green Roof		Naturalized Swale	
Water Reuse (i.e. cistern)		Oil Skimmer/Baffle	
Infiltration Bed		Proprietary Device (i.e. water quality unit)	
Infiltration Trench		Other:	
Infiltration Berm		Other:	

1

- Cover Sheet (one per site per year)
  - WQ Fee Discount?
  - Property Info Box
  - SCM Box
- IM Form
  - SCM Name & Photos
  - Dates (this, that, & the other)
  - Rainfall (measureable = 0.1"+)
  - Status (i.e., present condition)
  - The 3 "D"s to the IM Form
    - Describe
    - Describe
    - Describe
  - Inspector Info

# Good Form / Bad Form



\* Use One Sheet for Each BMP

Form I/M

BMP Detention Pond



Structure designation, type, number, area, etc.

Approximate date of installation 2010

Date of Last Inspection 02/07/18

This Inspection Date 4/17/18 Time 10:45 am

Condition of this BMP (use the numerical ranking below): 2

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

- Shrubs trimmed
- grass mowed
- Kept Free of debris/trash/toys

Description of **current** condition:

grass ok, 4-5"

List **needed** improvement and maintenance activities:

- Keep Free of debris/toys
- maintain grass

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date 4/17/18

\* Use One Sheet for Each BMP

Form I/M

BMP Pond A



Structure designation, type, number, area, etc.

Approximate date of installation 2008

Date of Last Inspection 12/1/2017

This Inspection Date 3/1/2018 Time noon

Condition of this BMP (use the numerical ranking below): 3

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

Description of **current** condition:

excellent

List **needed** improvement and maintenance activities:

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date 3/1/2018

\* Use One Sheet for Each BMP

Form I/M



BMP \_\_\_\_\_

Structure designation, type, number, area, etc. \_\_\_\_\_

Approximate date of installation March 2014

Date of Last Inspection 4 / 16 / 15

This Inspection Date 5 / 12 / 15 Time 12:45

Condition of this BMP (use the numerical ranking below): 1

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

- repair Aqua-Swirl man-way skid
- absorbent boom installed a detention head wall

Description of **current** condition:

overall condition is acceptable with minimal maintenance requirements

List **needed** improvement and maintenance activities:

- 1) excessive sediment accumulation a diversion outfall into detention pond
- 2) erosional features associated w/ canopy outfalls into detention pond
- 3) western wall of detention pond has erosional structure failure - needs stabilization
- 4) center of detention pond needs stabilization - no vegetation

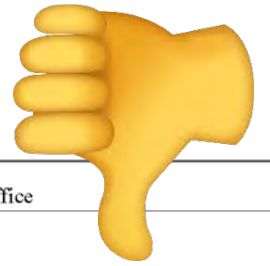
Name \_\_\_\_\_

Signature \_\_\_\_\_

Date 5/12/15

\* Use One Sheet for Each BMP

Form I/M



BMP Oil Separator 1 - Office

Structure designation, type, number, area, etc. Oil Separator 1 - Office

Approximate date of installation 2004

Date of Last Inspection 10 / 24 / 2017

This Inspection Date 3 / 12 / 2018 Time 2:00pm

Condition of this BMP (use the numerical ranking below): 3

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

Description of **current** condition:

Excellent Condition

List **needed** improvement and maintenance activities:

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date 3/12/2018

\* Use One Sheet for Each BMP

Form I/M



**BMP** Grass Filter Strip

Structure designation, type, number, area, etc. "Grass Filter Strip" 1

Approximate date of installation July 2010

Date of Last Inspection 6 / 27 / 17

This Inspection Date 9 / 29 / 17 Time 4 pm

Condition of this BMP (use the numerical ranking below): 2

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

Grass has been maintained.

Description of **current** condition:

Grass cover is good. Landscaped area appears stable, but water may be channelizing between landscaped area and grass.

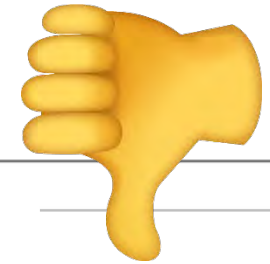
List **needed** improvement and maintenance activities:

Keep an eye on channelization.

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date 9/29/17

\* Use One Sheet for Each BMP

Form I/M



**BMP** (2) Storm Drains and Catch Basins

Structure designation, type, number, area, etc. \_\_\_\_\_

Approximate date of installation \_\_\_\_\_

Date of Last Inspection 6 / 11 / 2018

This Inspection Date 9 / 19 / 2018 Time 10:00am

Condition of this BMP (use the numerical ranking below): 2

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:

Tri State Roofing continues to repair roof drains around the campus. Maintenance continues to monitor the weather forecast and check and clean storm drains and catch basins as needed.

Description of **current** condition:

Acceptable Condition.

List **needed** improvement and maintenance activities:

Maintenance will check gutters and roof drains regularly to keep clear of leaves and debris. Monitor Forecast and check and clear drains before rain. Maintain Quarterly Inspection of all catch basins and storm drains.

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date 9/19/2018

\* Use One Sheet for Each BMP

BMP 1

Structure designation, type, number, area, etc. Permeable Pavement

Approximate date of installation 10/17/13

Date of Last Inspection 1 / 1

This Inspection Date 7 / 28 / 17 Time 10:00 AM

Condition of this BMP (use the numerical ranking below) 0

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:  
None

Description of **current** condition:  
Asphalt has obvious pooling in many areas, the worst of which are on the far East and West ends of the lot.

List **needed** improvement and maintenance activities:  
Area needs a good cleaning to determine if water will still permeate the surface.

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date 7/28/17

\* Use One Sheet for Each BMP

BMP 1

Structure designation, type, number, area, etc. Permeable Pavement

Approximate date of installation 10/17/13

Date of Last Inspection 7 / 28 / 17

This Inspection Date 8 / 24 / 17 Time 9:00 AM

Condition of this BMP (use the numerical ranking below) 1

- 3: Excellent condition (No Maintenance Needed)
- 2: Acceptable condition (No Maintenance Needed)
- 1: Needs improvement (Some Maintenance Needed)
- 0: Poor condition (Major Maintenance Needed)

List improvement or maintenance activities **conducted** since last inspection:  
Power Washing and sweeping of the lot was completed in a small test area and demonstrated marginal improvement in drainage.

Description of **current** condition:  
Washing and sweeping needed over entire permeable area.

List **needed** improvement and maintenance activities:





Name \_\_\_\_\_ Signature \_\_\_\_\_ Date 8/24/17

**Good Form Comparison**



START DATE: 12/11/11

END DATE: 1/1/12

<b>JOB ADDRESS</b>				<b>BILLING ADDRESS IF DIFFERENT</b>				<b>SERVICE ORDER</b>	
Customer Name				Customer Name					
Address				Address					
City	St.	Zip	Job Phone	City	St.	Zip	Other Phone	<b>TYPE</b>	
Chatt	TN	37406						<input type="checkbox"/> Service <input checked="" type="checkbox"/> Prev Maint <input type="checkbox"/> Estimate <input type="checkbox"/> Owner <input type="checkbox"/> Tenant <input type="checkbox"/> Residential <input type="checkbox"/> Commercial	
Would you like to receive Email offers? <input type="checkbox"/> Yes <input type="checkbox"/> No				Technician(s)				Contact P:	
Email Address:									
<b>PAYMENT</b>									
<input type="checkbox"/> Cash <input type="checkbox"/> Check <input type="checkbox"/> Billed     Check # or Credit card referral #: _____ Auth. Code: _____									

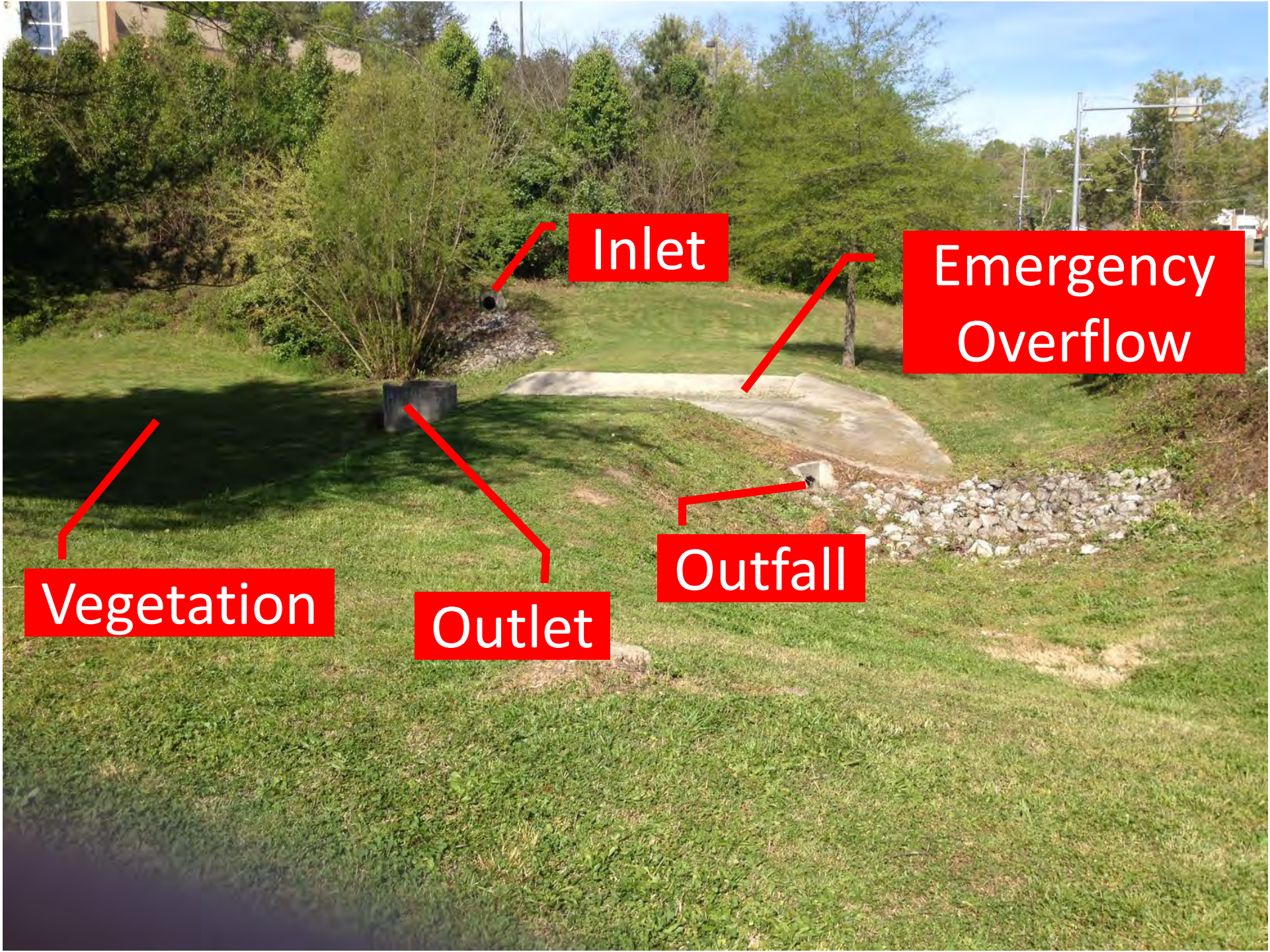
<b>DIAGNOSIS</b>	<b>SERVICE AUTHORIZATION</b>
    	<p><b>IMPORTANT NOTICE:</b> You and your contractor are responsible for meeting the terms and conditions of this contract. If you sign this contract and you fail to meet the terms and conditions of this contract, you may lose legal ownership rights to your home. <b>KNOW YOUR RIGHTS AND DUTIES UNDER THE LAW.</b> I agree that initial price quoted prior to start of work does not include any additional or unforeseen tasks. Nor materials which may be found to be necessary to complete repairs or replacements. I also agree to hold Service Monster or its assigns harmless for parts deemed corroded, unusable or unreliable for completion of stated work to be done. I hereby authorize Service Monster to perform proposed work and agree to all agreement conditions as displayed on the face and reverse sides of this document and further acknowledge that this invoice is due upon receipt. A monthly service charge, at maximum allowed by law, will be added after 10 days. Independently owned and operated franchise.</p>
	Authorized signature X _____ \$ _____

DESCRIPTION OF PRODUCTS AND SERVICES	TOTAL
VAC 2 storm drain & disposal of material	1500.00

<b>RECOMMENDATIONS</b>			
		\$	
		\$	
		\$	
		\$	
		\$	
		\$	
<p><b>24/7 EMERGENCY SERVICE</b></p> <p>Acceptance of work performed: I find the service and materials performed and installed have been completed in accordance with this agreement. I agree to pay reasonable attorney fees, collection fees and court costs in the event of legal action pursuant to collection of amount due.                  Customer signature X _____                  I do hereby state that the abo                  Technician signature X _____</p>		<b>SUB TOTAL</b> \$ _____	
		<b>TAX</b> \$ _____	
		<b>TOTAL</b> \$ _____	

Good Picture / Bad Picture





Inlet

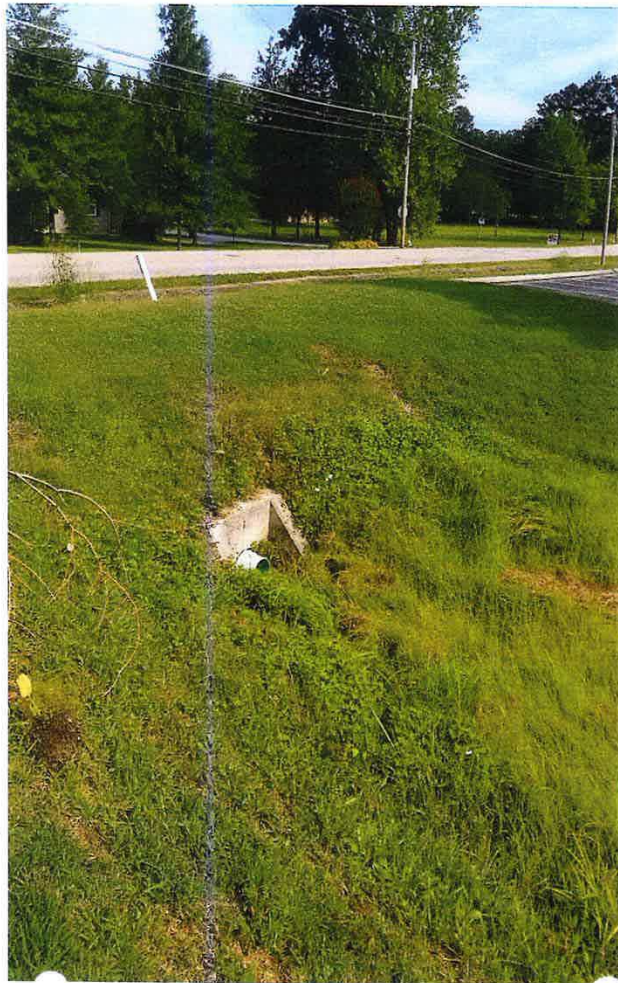
Emergency  
Overflow

Vegetation

Outlet

Outfall



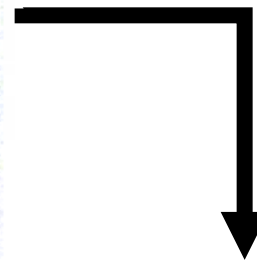
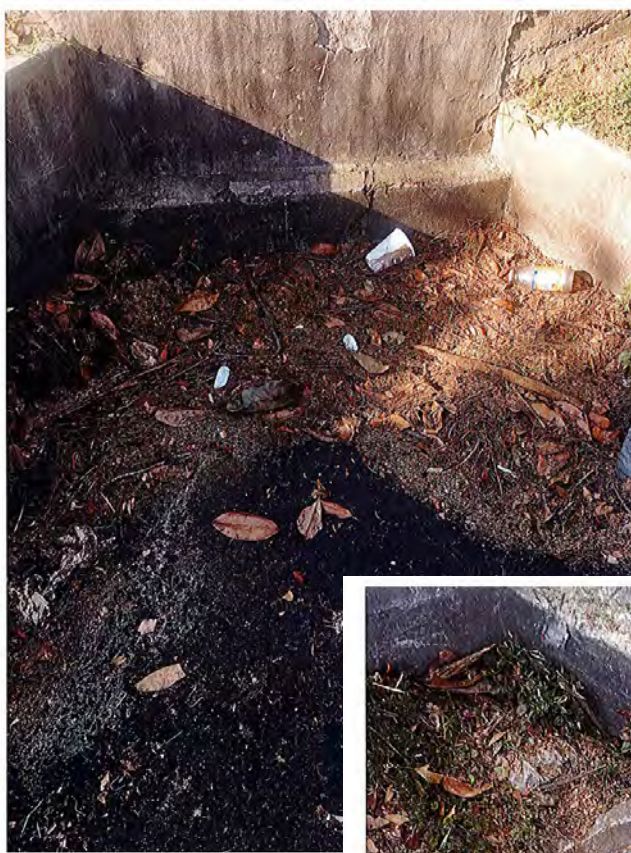


Detention Pond 6/13/18



Site Trees and Oil Skimmer 6/13/18

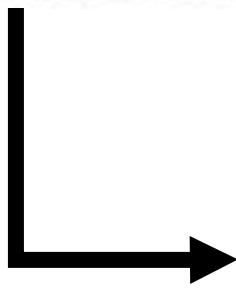
Labeled & Dated



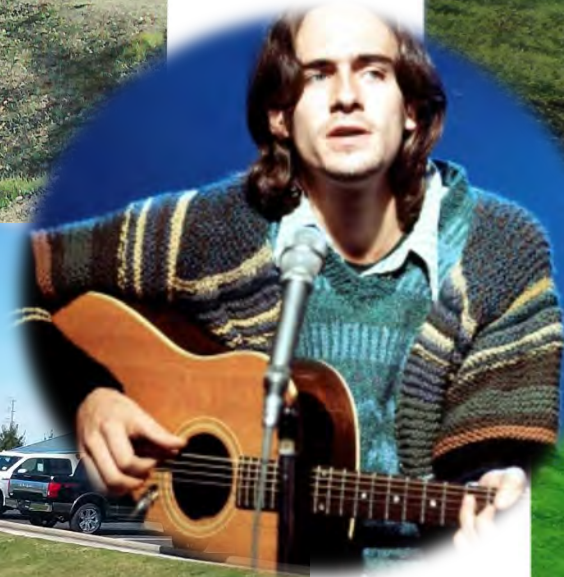
Before



After

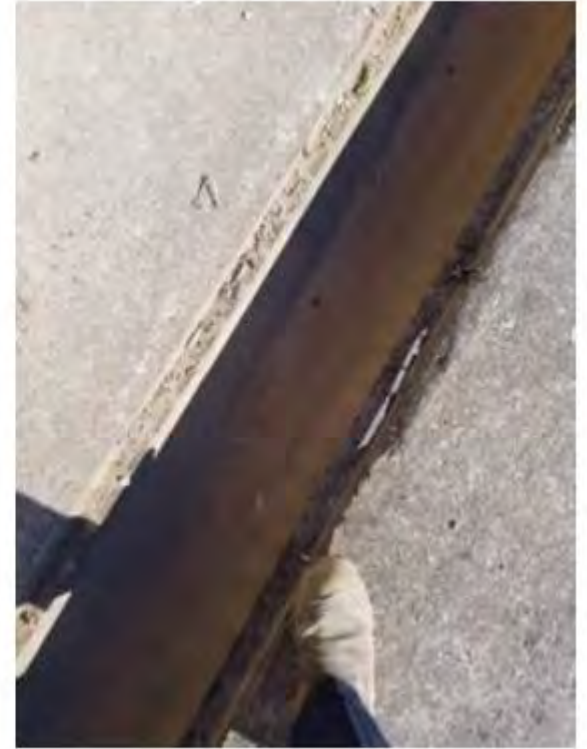


1/31/17



The Worst  
Picture is No  
Picture

?



However, this is not much better!





BMP Previous Pavement

Is there  
communication  
or just  
information?

Imagine turning in your report with no words.  
Your pictures should tell a story.



\* Use One Sheet for

**BMP** \_\_\_\_\_

Structure designat

Approximate date

Date of Last Ins

This Inspection

Condition of this I

3: Excellent condition  
2: Acceptable condition  
1: Needs improvement  
0: Poor condition (M

List improvement

Debris has been

Description of cur

The basin appears to have been all the way up to the height.

List **needed** improvement

General Maintenance

Name \_\_\_\_\_

\* Use One Sheet for

**BMP** \_\_\_\_\_

Structure designat

Approximate date

Date of Last Ins

This Inspection

Condition of this I

3: Excellent condition  
2: Acceptable condition  
1: Needs improvement  
0: Poor condition (M

List improvement

Mowing and li

Description of cur

It appears that the

List **needed** improvement

General Maintenance

Name \_\_\_\_\_

\* Use One Sheet for

**BMP** \_\_\_\_\_

Structure designat

Approximate date

Date of Last Ins

This Inspection

Condition of this I

3: Excellent condition  
2: Acceptable condition  
1: Needs improvement  
0: Poor condition (M

List improvement

The w

Description

The w

List **needed**

No ma

Name \_\_\_\_\_

Photo No. 1	Date: 9/19/18
Description:  View of facing east from outside of the basin.	

Photo No. 2	Date: 9/19/18
Description:  View of absorbent socks used to prevent sediment from getting into the inlet structure.	

Photo No. 3	Date: 9/19/18
Description: View of basin facing east.	

Photo No. 4	Date: 9/19/18
Description: View of inlet structure.	

Photo No. 5	Date: 9/19/18
Description: View of Basin	





Photo No. 6	Date: 9/19/18
Description: View of bio-swale	



Property Owner  
  
Contact Person  
  
Property Address  
  
Parcel ID  
  
Inspection Company  
  
Inspection Company

List of all BMP NO.	BMP
1	Deter
	Refer
	Bio-F
	Cons
	Sand
	Strea
	Propr

# APPENDIX "A" INSPECTION PHOTOS

## BMP "1": BIORETENTION POND



BEFORE MAINTENANCE: Bioretention Pond is full of old grass clippings.



AFTER MAINTENANCE: clippings



BEFORE MAINTENANCE: Bioretention Pond is full of old grass clippings. Grass clippings have accumulated and clogged the base of the filter dam.



AFTER MAINTENANCE: remove

## BMP "1": OVERFLOW STRUCTURE



BEFORE MAINTENANCE: Bioretention Pond overflow structure grate has accumulated grass clippings, clogging grate openings.



AFTER MAINTENANCE



BEFORE MAINTENANCE: Overflow structure basin has sediment and debris (grass clipping) built up in the bottom.



AFTER MAINTENANCE: sediment and of the ov

## BMP "1": RIP RAP FILTER DAM



BEFORE MAINTENANCE: Gravel has washed out at the base of the rip rap filter dam. Sediment and weeds have accumulated and need to be removed.



AFTER MAINTENANCE: Removed silt and weeds from washed out area. Replaced gravel, built up the eroded area, and added check dams.



BEFORE MAINTENANCE: Gravel has washed out at the base of the rip rap filter dam.



AFTER MAINTENANCE: Removed silt and weeds from washed out area. Replaced gravel, built up the eroded area, and added check dams.



[www.Chattanooga.gov/waterquality](http://www.Chattanooga.gov/waterquality)