



Tennessee Department of Environment and Conservation
 Division of Water Resources
 William R. Snodgrass Tennessee Tower,
 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
 1-888-891-8332 (TDEC)

Phase II Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Name of MS4: City of Hendersonville		MS4 Permit Number: TNS075353
Contact Person: Helen Morrison		Email Address: hmorrison@hvilletn.org
Telephone: (615-) 590-4649		MS4 Program Web Address: https://www.hvilletn.org/departments/public-works/stormwater
Mailing Address: 101 Maple Drive North		
City: Hendersonville	State: Tennessee	ZIP code: 37075

What is the current population of your MS4? 56,000

What is the reporting period for this annual report? July 1 2018 to June 30 2019

2. Discharges to Waterbodies with Unavailable Parameters or Exceptional Tennessee Waters (Section 3.1)

- A. Does your MS4 discharge into waters with unavailable parameters (previously referred to as impaired) for pathogens, nutrients, siltation or other parameters related to stormwater runoff from urbanized areas as listed on TN's most current 303(d) list and/or according to the on-line state GIS mapping tool (tdeconline.tn.gov/dwr/)? If yes, attach a list. Yes No
- B. Are there established and approved TMDLs (<http://www.tn.gov/environment/article/wr-ws-tennessees-total-maximum-daily-load-tmdl-program>) with waste load allocations for MS4 discharges in your jurisdiction? If yes, attach a list. Yes No
- C. Does your MS4 discharge to any Exceptional Tennessee Waters (ETWs - http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34304:4880790061142)? If yes, attach a list. Yes No
- D. Are you implementing specific Best Management Practices (BMPs) to control pollutant discharges to waterbodies with unavailable parameters or ETWs? If yes, describe the specific practices: Adhering to TDEC buffer and EPSC requirements for construction site runoff. Yes No

3. Public Education/Outreach and Involvement/Participation (Sections 4.2.1 and 4.2.2)

- A. Have you developed a Public Information and Education plan (PIE)? Yes No
- B. Is your public education program targeting specific pollutants and sources, such as Hot Spots? If yes, describe the specific pollutants and/or sources targeted by your public education program: Good housekeeping for home owners to reduce herbicides, pesticides, petroleum, pet wastes Yes No
- C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: <https://www.hvilletn.org/departments/public-works/stormwater> Yes No
- D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: All public education participation and involvement activities are advertised on the City's public access Channel 3, the Stormwater webpage, the City's events webpage, and on the City's facebook page.

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- E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: Goodlettsville Waterfest, Meeting with Metro Nashville and members of Engineering Board, Monthly Middle Tennessee Stormwater Group Meetings, Stream Restoration/ Mitigation presentation, How to Obtain 319 Funds to Improve Water Quality, Presented on Drone Use for Stormwater Inspections, Household Hazardous Waste Collection, City of Hendersonville Health Fair- Pollution Prevention Practices, Hosted Cumberland River Compact River Talk- " Stream Protection from Home with the Cumberland River Compact", 250K Tree Day
- F. Summarize any specific successful outcome(s) (e.g., citizen involvement, pollutant reduction, water quality improvement, etc.) fully or partially attributable to your public education and participation program during this reporting period: The City Stormwater Division was able to provide some water quality education to approximately 900 people ranging from children to EPSC professionals by participating in several different meetings, events, and special training.

4. Illicit Discharge Detection and Elimination (Section 4.2.3)

- A. Have you developed and do you continue to update a storm sewer system map that shows the location of system outfalls where the municipal storm sewer system discharges into waters of the state or conveyances owned or operated by another MS4? Yes No
- B. If yes, does the map include inputs into the storm sewer collection system, such as the inlets, catch basins, drop structures or other defined contributing points to the sewershed of that outfall, and general direction of stormwater flow? Yes No
- C. How many outfalls have you identified in your storm sewer system? 18
- D. Do you have an ordinance, or other regulatory mechanism, that prohibits non-stormwater discharges into your storm sewer system? Yes No
- E. Have you implemented a plan to detect, identify and eliminate non-stormwater discharges, including illegal disposal, throughout the storm sewer system? If yes, provide a summary: The City Stormwater Division recently drafted an Illicit Discharge Detection and Elimination Standard Operating Procedure for stormwater staff to follow. Stormwater staff complete monthly inspections of MS4 outfalls and industrial areas. Citizens are also encouraged to call the illegal dumping hotline to report illegal dumping into the storm sewer system. Yes No
- F. How many illicit discharge related complaints were received this reporting period? 8
- G. How many illicit discharge investigations were performed this reporting period? 8
- H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 7

5. Construction Site Stormwater Runoff Pollutant Control (Section 4.2.4)

- A. Do you have an ordinance or other regulatory mechanism requiring:
- Construction site operators to implement appropriate erosion prevention and sediment control BMPs consistent with those described in the TDEC EPSC Handbook? Yes No
- Construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste? Yes No

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- Design storm and special conditions for unavailable parameters waters or Exceptional Tennessee Waters consistent with those of the current Tennessee Construction General Permit (TNR100000)? Yes No
- B. Do you have specific procedures for construction site plan (including erosion prevention and sediment BMPs) review and approval? Yes No
- C. Do you have sanctions to enforce compliance? Yes No
- D. Do you hold pre-construction meetings with operators of priority construction activities and inspect priority construction sites at least monthly? Yes No
- E. How many construction sites disturbing at least one acre or greater were active in your jurisdiction this reporting period? 86
- F. How many active priority and non-priority construction sites were inspected this reporting period? 86
- G. How many construction related complaints were received this reporting period? 8
6. Permanent Stormwater Management at New Development and Redevelopment Projects (Section 4.2.5)
- A. Do you have a regulatory mechanism (e.g. ordinance) requiring permanent stormwater pollutant removal for development and redevelopment projects? If no, have you submitted an Implementation Plan to the Division? Yes No
 Yes No
- B. Do you have an ordinance or other regulatory mechanism requiring:
- Site plan review and approval of new and re-development projects? Yes No
- A process to ensure stormwater control measures (SCMs) are properly installed and maintained? Yes No
- Permanent water quality riparian buffers? If yes, specify requirements: _____ Yes No
- C. What is the threshold for development and redevelopment project plans plan review (e.g., all projects, projects disturbing greater than one acre, etc.)? All projects are reviewed.
- D. How many development and redevelopment project plans were reviewed for this reporting period? 39
- E. How many development and redevelopment project plans were approved? 38
- F. How many permanent stormwater related complaints were received this reporting period? 0
- G. How many enforcement actions were taken to address improper installation or maintenance? 0
- H. Do you have a system to inventory and track the status of all public and private SCMs installed on development and redevelopment projects? Yes No
- I. Does your program include an off-site stormwater mitigation or payment into public stormwater fund? If yes, specify. City Ordinance 18-204(2)(b) Provisions are made to manage stormwater by an off-site facility. The off-site facility must be in place and designed to provide the level of stormwater control that is equal to or greater than that which would be afforded by on-site practices. Further, the facility must be operated and maintained by an entity that is legally obligated to continue the operation and maintenance of the facility. Yes No

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7. Stormwater Management for Municipal Operations (Section 4.2.6)

- A. As applicable, have stormwater related operation and maintenance plans that include information related to maintenance activities, schedules and the proper disposal of waste from structural and non-structural stormwater controls been developed and implemented at the following municipal operations:
- | | | |
|--|---|--|
| Streets, roads, highways? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Municipal parking lots? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Maintenance and storage yards? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Fleet or maintenance shops with outdoor storage areas? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Salt and storage locations? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Snow disposal areas? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Waste disposal, storage, and transfer stations? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
- B. Do you have a training program for employees responsible for municipal operations at facilities within the jurisdiction that handle, generate and/or store materials which constitute a potential pollutant of concern for MS4s? Yes No
- If yes, are new applicable employees trained within six months, and existing applicable employees trained and/or retrained within the permit term? Yes No

8. Reviewing and Updating Stormwater Management Programs (Section 4.4)

- A. Describe any revisions to your program implemented during this reporting period including but not limited to:
- Modifications or replacement of an ineffective activity/control measure. N/A
- Changes to the program as required by the division to satisfy permit requirements. The City is currently working with consultants to address deficient areas within our MS4 Program, recently completing a full program assessment. The City will be focusing specifically to address storm sewer system mapping and illicit discharge detection and elimination education. The City will be revising the existing stormwater ordinance to address construction site runoff administrative penalties, construction site buffer requirements, permanent riparian buffers, and post construction permanent stormwater control measures.
- Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. Newly annexed areas in the City will be documented with new storm sewer mapping. Newly developed and redeveloped areas with perm SCMs will be included in the permanent SCM inventory.
- B. In preparation for this annual report, have you performed an overall assessment of your stormwater management program effectiveness? If yes, summarize the assessment results, and any modifications and improvements scheduled to be implemented in the next reporting period. The City recently completed a gap analysis of our stormwater management program. Attached is the summary of the program assessment from CEC. Yes No

9. Enforcement Response Plan (Section 4.5)

- A. Have you implemented an enforcement response plan that includes progressive enforcement actions to address non-compliance, and allows the maximum penalties specified in TCA 68-221-1106? If no, explain. The City is in the process of developing and implementing a new ERP that includes progressive enforcement actions to address non-compliance and allows the maximum penalties specified in TCA 68-221-1106. The City is working to implement administrative penalties for stormwater violations. The City is also planning to form a Stormwater Board (Public Works Committee) to hear appeals for administrative penalties. Yes No
- B. As applicable, identify which of the following types of enforcement actions (or their equivalent) were used during this reporting period; indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater management), and note those for which you do not have authority:

<u>Action</u>	<u>Construction</u>	<u>Permanent Stormwater</u>	<u>Illicit Discharge</u>	<u>In Your ERP?</u>	
Verbal warnings	# <u>5</u>	# <u>0</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Written notices	# <u>33</u>	# <u>0</u>	# <u>8</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Citations with administrative penalties	# <u>0</u>	# <u>0</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stop work orders	# <u>3</u>	# <u>0</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Withholding of plan approvals or other authorizations	# <u>4</u>	# <u>0</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Additional Measures	# <u>0</u>	# <u>0</u>	# <u>0</u>	Describe: _____	

- C. Do you track instances of non-compliance and related enforcement documentation? Yes No
- D. What were the most common types of non-compliance instances documented during this reporting period? Failure to properly design, install, maintain construction site BMPs

10. Monitoring, Recordkeeping and reporting (Section 5)

- A. Summarize any analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. The City has hired CEC to complete analytical monitoring for this permit cycle.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. The City has hired CEC to complete non-analytical monitoring for this permit cycle.
- C. If applicable, are monitoring records for activities performed during this reporting period submitted with this report. Yes No

11. Certification

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This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in sub-part 6.7.2 of the permit.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Jamie Clary, Mayor  8-6-19
 Printed Name and Title Signature Date

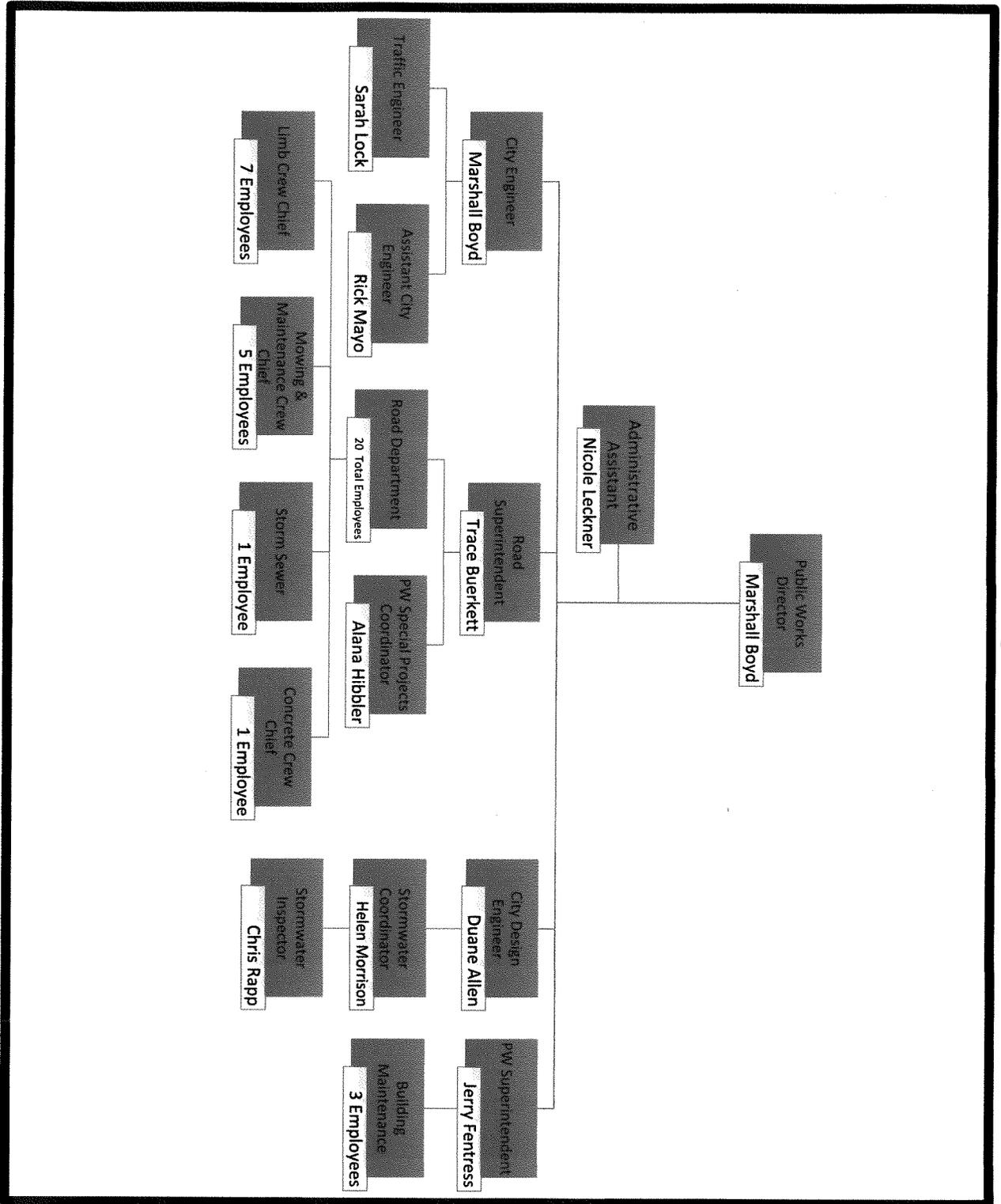
Annual reports must be submitted by September 30 of each calendar year (Section 5.4) to the appropriate Environmental Field Office (EFO), identified in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	1301 Riverfront Pkwy, Suite 206	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 520-6688
Jackson	1625 Hollywood Drive	Jackson	38305	(731) 512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	Knoxville	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive	Bartlett	38133	(901) 371-3000
Nashville	711 R S Gass Boulevard	Nashville	37216	(615) 687-7000

Attachments:

- 1. Organizational Chart**
- 2A. 303 (d) list for Hendersonville**
- 2C. List of ETWs (Streamside Salamander)**
- 3A. PIE Plan**
- 3E. PIE Plan Activities for 2018-2019**
 - i. Educational Brochures**
- 5B. Land Disturbance Permit Application Checklist**
- 5G. Construction Related Complaints**
- 6D. Plans Reviewed during Reporting Period Excel Sheet**
- 7A. O&M Plans**
 - i. Road Dept.**
 - ii. Parks Dept.**
- 8B. Gap Analysis Report**

2019 Public Works Organizational Chart



Attachment 2A.

Table 1: Waters with Unavailable Parameters within the City of Hendersonville

Waterbody Name	Waterbody I.D. # (Milage)	Cause(s)	Source Name(s)	VSA	Benthic	<i>E. Coli</i>
Center Point Branch	TN05130202220_0500 (3.26 miles)	Nutrient Eutrophication Biological Indicators	Municipal (Urbanized High Density Area)	X	X	
Madison Creek	TN05130202220_0400 (0.34 miles)	Sedimentation/Siltation	Municipal (Urbanized High Density Area)	X	X	
		Alteration in stream-side or littoral vegetative covers	Municipal (Urbanized High Density Area)			
Manskers Creek	TN05130202220_1000 (1.12 miles)	Sedimentation/Siltation	Municipal (Urbanized High Density Area)	X	X	X
		<i>Escherichia coli</i>	Municipal (Urbanized High Density Area)			
Waterbody Name	Waterbody I.D. # (Milage)	Cause(s)	Source Name(s)	VSA	Benthic	<i>E. Coli</i>
Unnamed Trib to Cheatham Reservoir	TN05130202001T_0600 (1.13 miles)	Chlorine	Municipal Point Source Discharges	X	X	
		Alteration in stream-side or littoral vegetative covers	Municipal (Urbanized High Density Area)			
		Sludge	Municipal (Urbanized High Density Area) & Municipal Point Source Discharges			
Unnamed Trib to Drakes Creek	TN05130201047_0100 (2.19 miles)	Alteration in stream-side or littoral vegetative covers	Municipal (Urbanized High Density Area)	X	X	
Unnamed Trib to Drakes Creek	TN05130201047_0200 (2.28 miles)	Alteration in stream-side or littoral vegetative covers	Municipal (Urbanized High Density Area)	X	X	

Hendersonville MS4 Permit Public Information and Education Plan

Issue Date: 4/3/2019

Version: 1

Review Frequency: Annual

1. Introduction:

The Public Information and Education (PIE) Plan is a requirement in the State of Tennessee's Small Municipal Separate Storm Sewer System (MS4) General National Pollution Discharge Elimination System Permit (hereafter referred to as the "NPDES permit"). Coverage under this permit was granted to the City of Hendersonville on April 3, 2017 under Permit Tracking Number TNS075353. The requirements of the PIE plan are listed in section 4.2.1 of the NPDES permit. Under this section, the City of Hendersonville must provide for the following:

- Detail specific goals and public information events/activities that will occur over the remainder of the permit cycle;
- Document all public education and outreach components;
- Incorporate an evaluation of components to assess overall effectiveness and the need for improvement;
- Include targeted educational campaigns addressing the following issues:
 - a. General public awareness on the impacts on water quality from general housekeeping maintenance/activities;
 - b. Home owner associations and other operators of permanent BMPs awareness of the importance of maintenance activities;
 - c. Local engineering and development community awareness of the stormwater ordinance, regulations, and guidance materials related to long-term water quality impacts;
 - d. General public and professional chemical applicators awareness on the proper storage, use, and disposal of pesticides, herbicides and fertilizers;
 - e. General public and related commercial and professional stakeholders awareness on the proper storage, use and disposal of oil and other automotive-related fluids;
 - f. General public and municipal employees on the awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.;
 - g. Local engineering, development, and construction community awareness of stormwater ordinances, regulations and guidance materials related to construction phase water quality impacts; and
 - h. Municipal employee/contractor awareness of water quality impacts from daily operations.

This PIE plan presents an outline for the City of Hendersonville's public education and outreach program and documents the City's plan for compliance with the requirements.

2. Public Education and Participation

The City of Hendersonville participates in several special events throughout the year. Stormwater staff attend monthly stormwater group meetings, distribute trees for 250K Tree Day, and attend several

community events to promote water quality in the community. Table 1 depicts the City of Hendersonville's efforts to provide targeted educational campaigns to address specific issues.

Table 1- City Efforts for Required Educational Campaigns	
Required Educational Campaigns	City Efforts
a. General public awareness on the impacts on water quality from general housekeeping maintenance/activities;	<ul style="list-style-type: none"> • Public education on good housekeeping maintenance/activities displayed on website • Educational power points/videos shown on public access Channel 3 • Participate in special events
b. Home owner associations and other operators of permanent BMPs awareness of the importance of maintenance activities;	<ul style="list-style-type: none"> • Work with consultants to identify all HOAs and existing perm. BMPs • Provide educational information on permanent BMP maintenance on website
c. Local engineering and development community awareness of the stormwater ordinance, regulations, and guidance materials related to long-term water quality impacts;	<ul style="list-style-type: none"> • All EPSC plans are reviewed by 3rd party contractor with education component to guide designers on how to properly design EPSC measures • Provide educational information (TDEC Erosion and Sediment Control Handbook, Permanent BMP Manual, Stormwater Ordinance, EPSC plan review checklist) on website
d. General public and professional chemical applicators awareness on the proper storage, use, and disposal of pesticides, herbicides and fertilizers;	<ul style="list-style-type: none"> • Provide educational information for proper storage, use, and disposal of pesticides, herbicides, and fertilizers
e. General public and related commercial and professional stakeholders awareness on the proper storage, use and disposal of oil and other automotive-related fluids;	<ul style="list-style-type: none"> • Plan targeted mail outs to commercial and professional stakeholders regarding proper storage, use and disposal of oil and other automotive-related fluids • Add education information to website
f. General public and municipal employees on the awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.;	<ul style="list-style-type: none"> • Develop IDDE website subpage with educational information to identify illicit discharges/connections, sanitary sewer seepage, spills, etc. • Provide on-site reporting questionnaire
g. Local engineering, development, and construction community awareness of stormwater ordinances, regulations and guidance materials related to construction phase water quality impacts; and	<ul style="list-style-type: none"> • Create webpage to provide ordinance education and design criteria for engineers, develops, and construction community

h. Municipal employee/contractor awareness of water quality impacts from daily operations.	<ul style="list-style-type: none"> • Provide training to municipal employees and contractors on stormwater pollution prevention methods
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3. Responsible Personnel

The Hendersonville Stormwater Division is wholly responsible for developing and implementing the PIE plan and meeting program specific goals. Table 2 depicts general PIE plan objectives and the responsible personnel.

Table 2- PIE Plan Responsible Personnel		
Personnel	PIE Plan Responsibility	Contact Information
Duane Allen	<ul style="list-style-type: none"> • Oversees PIE Plan objectives • Reviews/Approves all distribution of public information/education materials 	615-822-1016 dallen@hvilletn.org
Helen Morrison	<ul style="list-style-type: none"> • Reviews PIE Plan objective to be consistent with MS4 requirements • Coordinates all public education programs and events • Coordinates participation at community events with other MS4s • Oversees development of public educational materials • Documents public education events and activities for Annual Report • Oversees Stormwater web pages 	615-590-4649 hmorrison@hvilletn.org
Christopher Rapp	<ul style="list-style-type: none"> • Promotes education and outreach events through various means • Provides educational programming at special events 	615-590-4659 crapp@hvilletn.org

4. PIE Plan Goals

The goal of the City of Hendersonville PIE Plan is to minimize the discharge of pollutants to receiving streams. The City will identify hot spots with upcoming storm sewer system mapping and stream monitoring and develop specific educational programming to address the identified pollutants of concern. A summary of typical pollutants of concern and the source of pollutants can be seen in Table 3 below.

Table 3- Typical Pollutant Runoff from Major Land Use Categories

Major Land Use	Typical Pollutants	Typical Source	Resulting Water Quality Degradation to Target in Educational Messages
Residential	<ol style="list-style-type: none"> 1. Nutrients 2. Sediment 3. Pathogens 4. Organics 	<ol style="list-style-type: none"> 1. Over-fertilization, Pet Waste, Human Waste and Detergents from failing septic systems. 2. Grading areas without maintained controls. Removing stream bank vegetation. 3. Failing septic systems, illegal cross-connections of sanitary and stormwater, and pet waste. 4. Dumping of leaves/grass clippings in conveyances 	<ol style="list-style-type: none"> 1. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Potentially harmful to human health. 4. Decomposition depletes dissolved oxygen levels within streams
Light Commercial	<ol style="list-style-type: none"> 1. Hydrocarbons (Oil & Grease) 2. Trash 3. Nutrients 4. Sediment 	<ol style="list-style-type: none"> 1. High-traffic parking lot areas, leaking storage tanks, etc. 2. Poor grounds upkeep, especially in parking areas and around dumpsters. 3. Landscaping/golf courses. 4. Grading/developing without maintained controls. Removing stream bank vegetation. 	<ol style="list-style-type: none"> 1. Toxic to aquatic life and impact drinking water supplies. 2. Aesthetically displeasing, can block drainage pipes causing erosion, can be harmful to wildlife. 3. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 4. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants.
Industrial/Heavy Commercial	<ol style="list-style-type: none"> 1. Metals 2. Sediment 3. Hydrocarbons (Oil & Grease) 	<ol style="list-style-type: none"> 1. Exposed industrial processes/improper disposal. 2. Exposed industrial processes/improper disposal. Gravel parking lots with heavy truck traffic. 3. Equipment leakage, leaking storage containers, high-traffic pervious areas. 	<ol style="list-style-type: none"> 1. Acute or chronic toxic impacts to aquatic wildlife. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Toxic to aquatic life and impact drinking water supplies.

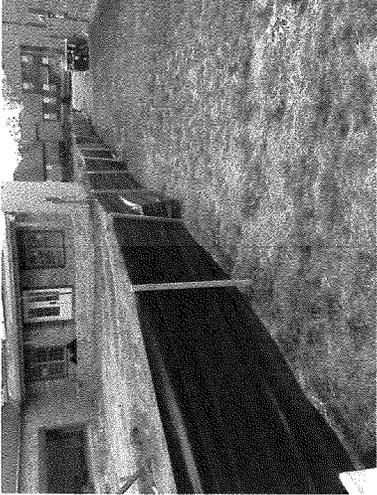
Source: Metro Nashville Municipal Separate Storm Sewer System Permit Public Information & Education Plan (2016)

5. Program Evaluation

City Stormwater personnel will meet annually and review public education goals and activities to assess the program's overall effectiveness and the need for improvement.

6. 2018-19 PIE Plan Efforts/Activities

2018-19 Special Events & Outreach			
Date	Event	Location	Attendance Audience
7/20/2018	Waterfest	Goodlettsville, TN	400 Children, Parents
8/3/2018	Meeting with Metro	Metro Water Services	7 EPSC Professionals
8/8/2018	MTSG Meeting	Cumberland River Aquatic Center	21 EPSC Professionals/Public
8/27/2018	Stream Restoration/Mitigation- BDS	Hendersonville, TN	6 EPSC Professionals
8/30/2018	How to Obtain 319 Funds to Improve WQ	CEC- Franklin, TN	30 EPSC Professionals
9/12/2018	MTSG Meeting- Drone Presentation	Gallatin Civic Center	19 EPSC Professionals/Public
10/28/2019	Household Hazardous Waste Collection	Vol. State Community College	200 Citizens
11/16/2019	Health Fair- Water Quality Presentation	Hendersonville Public Library	100 City Employees
11/28/2019	Cumberland River Compact River Talk	Hendersonville City Hall	25 Citizens
12/12/2018	MTSG Meeting	Black Eyed Pea- Hendersonville	19 EPSC Professionals/Public
1/9/2019	MTSG Meeting	Goodlettsville, TN	21 EPSC Professionals/Public
2/13/2019	MTSG Meeting	Goodlettsville, TN	13 EPSC Professionals/Public
3/13/2019	MTSG Meeting	Goodlettsville, TN	9 EPSC Professionals/Public
5/8/2019	MTSG Meeting	Goodlettsville, TN	12 EPSC Professionals/Public
6/12/2019	MTSG Meeting	Gallatin Civic Center	18 EPSC Professionals/Public



Silt fence not properly installed

What the Stormwater Inspector Inspects

Silt Fence - On contour, properly trenched, proper application, maintenance/repairs

Construction Entrance - Proper length, width, & depth, correct stone size, geotextile fabric underlayment, proper application, functioning properly

Inlet protection - City approved, proper installation, properly maintained, secondary protection

Trash - Receptacles on-site, trash properly disposed of, evidence of discharge in storm sewer system

Concrete washout - accessible, properly installed and indicated, maintained

Illicit Discharge - at all site outfalls, waters of the State, objectionable color contrast

Quick Facts:

- Construction activities can result in soil loss of 150 to 200 tons per acre-year in stormwater runoff
- BMP's are the key parameter for successful water quality protection
- Proper installation of Erosion Prevention and Sediment Control measures will save time and money
- Failure to protect waters of the State will impact the use classification; results in decrease of property values in the City
- Violations of the Stormwater Ordinance could result in a civil penalty of not less than fifty dollars (\$50.00) or more than five thousand dollars (\$5,000) per day for each day of violations (TCA 68-22-1106)

Hendersonville Public Works Dept.

101 Maple Drive North

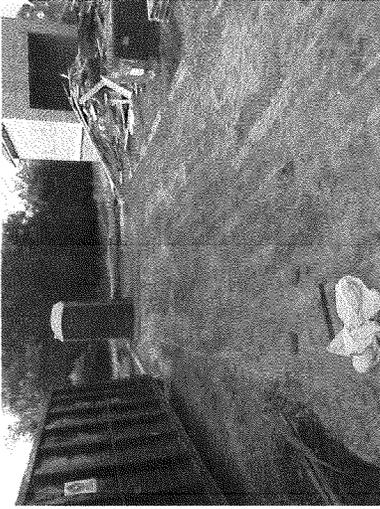
Hendersonville, Tennessee 37075

615-822-1016

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION SITES

Simple Guidelines to Prevent Degradation to Waters of the State





Road inundated with mud and trash with unprotected inlet; next to a creek

Who is Responsible for the Property?

The site owner/developer is referred to as the primary permittee and is ultimately responsible for compliance with water quality laws. Contractors are required to sign on to the Notice of Coverage (NOC). If a contractor fails to sign on to the developer's NOC, the developer can be held accountable for any permit violations. Developers must provide the contractor's Notice of Intent prior to receiving a Land Disturbance Permit from the City.

The City will be taking a proactive approach to address the lack of knowledge and maintenance of BMP's. Implementation of a new Stormwater Ordinance means violators will face fines for violations on a daily basis.

Proper Installation is Key!

BMP's prevent pollutants from entering the storm sewer system and ultimately waters of the State. The State has provided the *Erosion & Sediment Control Handbook* with instructions on how to properly design and install BMP's. Failing to properly install BMP's is a waste of time and money. Improper installation will prevent you from receiving a City of Hendersonville Land Disturbance Permit.

Common Problems

The City of Hendersonville has several active construction sites. Below are some of the most common problems observed:

- Land disturbance without a permit (City Ord. #18-203)
- Failing to properly design, install, and maintain BMP's (City Ord. #18-205)
- Contractors and subcontractors damaging/destroying installed BMP's
- Failing to complete 72-hour inspections and make corrections (CGP 3.5.8.2)
- Failing to dispose of all trash/waste generated on site (City Ord. #17-203)
- Tracking mud and debris into the roadway; failing to remove it immediately (City Ord. #16-107)

Pollution Prevention

Below are some quick tips to prevent stormwater pollution at construction sites. Site owners should work with contractors and subcontractors to prevent discharge of pollutants directly or indirectly into the storm sewer system.

- Proper installation of BMP's
- Proper storage of chemicals
- Proper disposal of chemicals
- Follow construction sequence of events
- Complete 72-hour inspections
- Maintain site BMP's
- Clean up on-site trash/debris daily
- Do NOT burn trash
- Clean up spills immediately
- Remove mud/debris from roadway immediately
- Work with Subs to prevent damage of BMP's
- Keep pollutants at least 50 feet away from drainage structures
- Proper use of concrete washout

Pollutants of Concern

- Sediment
- Trash and Construction debris
- Pesticides and Fertilizers
- Oil and Grease
- Hazardous chemicals and metals

Did you know?

The City of Hendersonville is home to the State Endangered Streamside Salamander. The Streamside Salamander likes to breed during the winter months and can be found in small, seasonal streams from December through June. Salamanders eat insects, spiders, worms and other aquatic critters including nuisance slugs, mosquito larvae and flies. Salamanders also serve as an indicator species for environmental stressors. Conservation of our native species is another reason why we should reduce stormwater pollution.



Recycling Locations:

Batteries and Light Bulbs
Batteries Plus + Bulbs
1002 Glenbrook Way
Hendersonville, TN 37075
615-590-8493

Used Motor Oil
Advance Auto Parts
199 West Main Street
Hendersonville, TN 37075
615-822-7665

Limbs and Leaves
Community Brush Drop-Off Day- Last Saturday of Every Month 7AM-3PM
Only for City Limit Residents- Bring ID
501 Forest Retreat Road
Hendersonville, TN 37075
For Express Brush-Limb collection (\$75) call
615-500-7404

Solid Waste and Recycling
Sumner County Resource Authority
625 Rappahannock Wire Road
Gallatin, TN 37066
615-452-1114

Drug Drop Off Box
Hendersonville Police Department
3 Executive Park Drive
Hendersonville, TN 37075
615-822-1111

Call the Hendersonville Stormwater Division at 615-822-1016 to report illegal dumping into the Storm Drain.

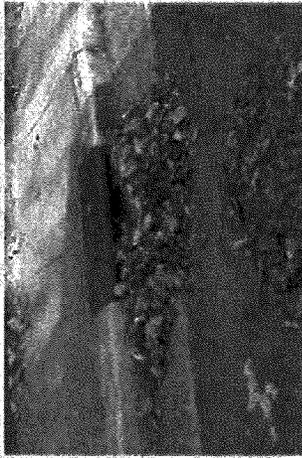
Stormwater Pollution Prevention Tips

No Dumping!



Only Rain Down the Drain!





Disposal of Prescription Medications

The Hendersonville Police Department has a safe disposal box for unwanted drugs. This provides a safe method of disposal and prevents drugs from being discarded in our waterways and water supply.

Oil Disposal

Properly disposing of used oils can prevent pollution of our soils, surface and ground waters. One gallon of oil can pollute 250,000 gallons of clean water. Many auto maintenance stores provide on-site oil recycling to encourage proper disposal of oils.

Recycle Batteries and Light Bulbs

Recycling spent batteries and light bulbs reduces waste in our landfills, stops harmful chemicals from contaminating our soil and water, and preserves our environment by decreasing the need for new raw materials from the Earth. Compact fluorescent light bulbs (CFLs) contain a small amount of mercury and should be recycled properly to prevent mercury exposure.

Pollution Prevention at Home

Recycle Yard Wastes

The City of Hendersonville provides leaf and limb pick up for FREE (Express pick up \$75). Instead of blowing leaves into the street and streams, collect them and place them in biodegradable paper bags to be picked up and mulched at our City Mulching Facility. Discarded leaves and limbs can end up in our storm sewer system, clogging storm grates and pipes, resulting in damage to drainage structures and residential flooding.

Grasscycling

Don't blow your grass clippings into the road, ditches, or streams. It is a violation of City Ordinance, but more importantly it negatively impacts our storm sewer system and the quality of our streams and lake. Instead spread dried grass clippings over your yard. Grass clippings provide ground cover to prevent erosion and much needed nutrients (Nitrogen, Potassium, and Phosphorus) for fertilization. Remember to keep your mower blade sharp, avoid mowing when the grass is wet, and mow regularly.

Scoop the Poop

Pet waste is a major cause of E. Coli in our streams and rivers. Bacteria found in dog feces can cause serious diseases in humans if contaminated water comes in contact with an open wound or is ingested. Clean up after your pet and encourage others to do so, what is left behind ends up in our streams and Old Hickory Lake.

Limit Use of Fertilizers and Pesticides

Follow the instructions on fertilizers to avoid excess fertilizer that can be washed into the our storm sewer system. Organic mulch is a much safer option for fertilizing your lawn. Natural pesticides/insecticides are better for the environment, your family and pets.

Vehicle Maintenance

Use drip pans to catch fluids during vehicle maintenance. Wash your car over the grass using ecofriendly detergents. This prevents pollutants from running off the driveway into the storm drain and our streams during rain events.

Paint Disposal

Latex paint can be dried and disposed of in the trash. Coordinate donation with a family/facility in need. You must schedule an appointment with the Summer County Resource Authority to dispose of OIL-BASED paint.

Pollution Prevention at Work

- Bring your favorite tumbler or coffee mug to work to fill with the beverage of your choice. Reducing single use plastics and Styrofoam in our landfills.
- Request that suppliers use less plastic packaging
- Provide reusable utensils in the kitchen
- Recycle office waste using our City provided single stream recycling service. Encourage your coworkers to recycle whenever possible.

Why are they Important?

Streamside salamanders are important and provide benefits to their environment and humans by:

- Consuming insects, other pests, and their larvae in forests, streams and agricultural fields
- Moving nutrients from the streams to the land and vice versa
- Providing a source of food for larger predators
- Acting as an indicator species for environmental stressors

Who I Am

About Me

I am a Masters student in Environmental Science working out of the Wildlife Lab at Tennessee State University. My Masters project involves using environmental DNA to detect Streamside Salamanders and estimate their numbers in stream segments. My goal is to develop an efficient, cost effective method for wildlife agencies to find these secretive animals.

Contact Me

Phone: 612-710-5359

Email: nwitzel@my.tnstate.edu



HAVE YOU SEEN ME?

STREAMSIDE
SALAMANDER
(*Ambystoma barbouri*)

Nicole Witzel
Masters Student





Streamside salamander adult

What is a Streamside Salamander?

Streamside salamanders are small salamanders with chunky bodies and short noses. They are typically grey to black with lighter colored markings on their sides.



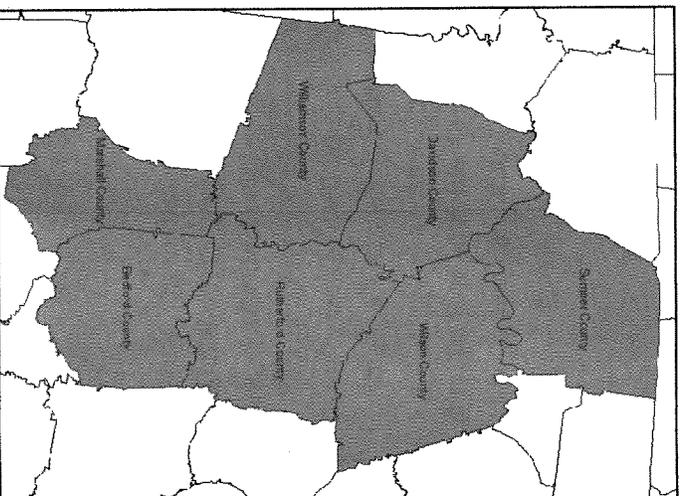
Streamside salamander eggs



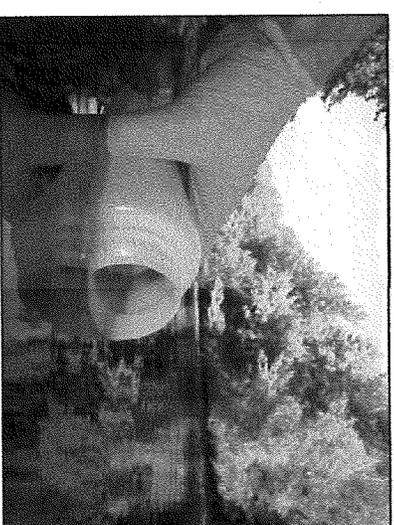
Streamside salamander larvae

Where do you find Streamside Salamanders?

Streamside salamanders are native to Middle Tennessee and are listed as an imperiled species within the state. They can be found during the winter months in small, seasonal streams with flat rocks. Adult salamanders migrate to the streams to breed and lay their eggs and then move back into forests and fields. Baby salamanders hatch out into the streams and leave the water a few weeks to months later.



Streamside salamander distribution



How do you find Streamside Salamanders?

Streamside salamanders are very difficult to find. Usually they can be found by flipping over rocks in streams, which is time consuming. I am developing a way to use environmental DNA to detect the streamside salamander in a sample of water. Environmental DNA is DNA such as skin cells, sperm or eggs that are naturally shed into the water. There are ways that scientists can collect a water sample, filter out the DNA and detect the DNA of a certain species if it is present in the stream. This gives us an efficient way to determine where species exist.



CITY OF HENDERSONVILLE EPSC PLAN REVIEW CHECKLIST

Project Name: _____

Date: _____

GENERAL DOCUMENTS REQUIRED

- Completed Application with Application Fee
- Include a copy of all required permits
 - TDEC Permits (NOC, ARAP, Sinkhole UIC, etc.)
 - USACE Permits (Section 404, etc.)
 - TVA Permits
- Complete EPSC set of plans
- Drainage Report
- Copy of the USDA Web Soil Survey
- Copy of the FEMA Map
- Copy of the National Wetlands Inventory Overlay

SPECIFIC PLAN REQUIREMENTS

Note: All EPSC plan sheets should contain the following:

- Show and label the 100-year floodplain and all hydrologic features
- Show and label any required buffers. Show the stream buffer sign locations.
 - Hendersonville requires a non-average 30' stream buffer
 - Show the stream buffer sign locations
 - Install High Visibility Fencing around the hydrologic features
- Show the survey benchmark, property lines, ROW lines, and easements
- Label the roadways
- The limits of disturbance should encompass all EPSC measures and not overlap them in the plans. Note the acreage of the limits of disturbance.
- Show and label the site outfalls. Note the acreage.



CITY OF HENDERSONVILLE EPSC PLAN REVIEW CHECKLIST

- COVER SHEET**
 - Include the project name and site address
 - Include Owner and Engineer's information
 - Provide a vicinity map with north arrow

- EXISTING CONDITIONS / DEMOLITION SHEET**
 - Tree Survey and Tree Removal (To be reviewed by Planning Department)

- EPSC STAGE 1 PLAN SHEET**
 - Pre-Development Conditions
 - Show and label the existing contours
 - Show the existing site features and stormwater system
 - Show the existing forest line
 - Show any haul roads, stream crossings, parking areas, and/or equipment staging areas that may be required prior to the roadway installation. Provide appropriate pollution prevention measures such as fuel tank secondary containment.
 - Provide perimeter EPSC measures
 - Provide the construction exit and concrete washdown location
 - Provide any required sediment basins or traps
 - Provide EPSC measures around stockpile locations
 - Provide outlet protection for all concentrated discharges
 - Provide check dams in all channels receiving drainage from disturbed areas. These do not always need to be rock check dams.
 - Provide all other EPSC measures required to control sediment during the initial stage of construction

- EPSC STAGE 2 PLAN SHEET**
 - Pre-Roadway Binder Conditions
 - Show and label the existing and proposed contours
 - Show the proposed site layout as it will exist during pre-binder conditions. Include the outline of the roadway.
 - Show the proposed stormwater features and any existing stormwater features to remain
 - Adequate perimeter EPSC measures, the construction exit, and concrete washdown locations must remain in place
 - Sediment basins/traps should remain in place unless replaced by permanent detention ponds
 - Sediment should be controlled as close to the disturbance as possible to prevent sediment travelling across the site. Perimeter EPSC measures should be considered secondary treatment.
 - Provide inlet protection for all proposed inlets that will receive flow at this stage



CITY OF HENDERSONVILLE EPSC PLAN REVIEW CHECKLIST

- Provide outlet protection for all concentrated discharges
 - Provide check dams in all channels receiving drainage from disturbed areas.
- EPSC STAGE 3 PLAN SHEET**
- Post-Roadway Asphalt Conditions
 - Show and label the existing and proposed contours
 - Show the final site layout including all stormwater infrastructure
 - The concrete washdown location should remain in place
 - Provide FlexStorm Catch It inlet protection for all roadway inlets
 - Provide any temporary EPSC measures that could not be installed until Stage 2 was complete. These measures should be noted as temporary.
 - Call-out all stabilization measures for the site
 - Remove all rip-rap aprons, and provide permanent downstream stabilization
- EPSC DETAIL SHEETS**
- Provide details for all EPSC measures shown in Stages 1-3
 - Reference TDEC details
 - Provide a stream buffer sign detail (if required)
- Any other plan sheets required to evaluate the EPSC Plan (Site Layout, Grading Plan, Landscaping Plan, etc.)
- REQUIRED PLAN NOTES**
- Note if the site drains to impaired (habitat alteration or siltation) or exceptional TN waters. If so, note the stream name.
 - Note the TDEC NOC number if applicable
 - Note the FEMA information for the site. List the community map, panel number, and date.
 - Note that the Site Designer must certify that all initial EPSC measures are installed per the plan and details prior to beginning grading operations. The site designer must also perform a site assessment after 30 days of construction.
 - Note the Contractor is required to sweep the streets daily where the construction exit is located
 - Note that all disturbed areas must be stabilized within 14 days of any stoppage in work to the area
 - Note that all slopes 3:1 or steeper shall be stabilized with EPSC matting or sod
 - Note that the Contractor shall repair/replace any EPSC measures that are failing or in disrepair as indicated on the 72 hour TDEC Construction Inspection Report and/or when notified by the City Stormwater Inspector
 - Note the TDEC BMP Manual's dewatering criteria
 - Provide a construction schedule



CITY OF HENDERSONVILLE EPSC PLAN REVIEW CHECKLIST

DRAINAGE REPORT

- DRAINAGE MAPS FOR PRE-DEVELOPMENT AND EACH EPSC STAGE**
 - Include drainage areas to all EPSC measures
 - Label the acreage and CN value for each drainage area
 - Label the outfall areas with acreage noted
 - Provide a plan to handle any increased runoff to an outfall
 - Include flow arrows
 - Label the contours
 - Off-site flows that are part of the drainage areas must be included

- SEDIMENT TRAP AND SEDIMENT BASIN CALCULATIONS**
 - Sediment traps/basins must be able to handle the 2-year storm or 5-year storm if draining to impaired or exceptional TN waters
 - Sediment traps/basins must be able to pass the 25-year storm
 - Include stage/storage tables to show the 2-year, 5-year, and 25-year stormwater elevation in the sediment trap/basin

- DIVERSION DITCH CALCULATIONS**
 - Ditches must be designed to handle the 2-year storm or 5-year storm if draining to impaired or exceptional TN waters
 - Note the ditch dimensions, slope, manning's n, and velocity

- TEMPORARY CULVERT CALCULATIONS**

- OUTLET PROTECTION CALCULATIONS**

- SILT FENCE CALCULATIONS**
 - Minimum of 100 LF of silt fence per ¼ acre of drainage area
 - Only silt fence parallel to the contours should be used in the calculation

Note: All projects are to provide, at a minimum, the items specified in this EPSC Plan Review Checklist. Check the City of Hendersonville Stormwater website for the most recent Plan Review Checklist.

Attachment 5G

Construction Related Complaints 2018-19

Date	Location	Complaint	NOV	Stop Work	Photos	Date Resolved
8/9/2018	113 Maple Row Blvd	Mud/debris in road	Y	N	Y	8/9/2018
8/15/2018	996 Golf Club Lane East	Sand/Mortar in road and MS4	Y	N	Y	8/16/2018
8/17/2018	179 Indian Lake Rd	Mud in road	Y	N	Y	8/17/2018
9/5/2018	151 Cobbler Circle	Concrete washout in Road	Y	N	Y	9/5/2018
2/14/2019	Merchant Point	Concrete debris leaving site	N	N	Y	2/18/2019
3/14/2019	Property Owner 109 Blueg	Active site discharging sediment onto neighbor	N	N	Y	3/21/2019
5/3/2019	Cobbler Circle	Mud/debris in road	Y	N	Y	5/7/2019
6/7/2019	Cobbler Circle	Mud/debris, bmp failures	N	N	Y	6/13/2019

Attachment 6D

2018-2019 Reporting Period Plans Reviewed						
18-012	7/23/2018	Cruisin' Sports	60 Volunteer Drive	Scot Robinson	615-406-9249	1.1
18-013	Review	206 Bahai Mar Pt	"	Danny Guy	615-207-6688	0.25
18-014	Review	Savannah 8.1	Cages Bend	Mike Duke	615-887-7736	9.21
18-015	Review	Savannah 9	Cages Bend	Mike Duke	615-887-7736	13.03
18-016	Review	Crowley Business Office	101 Tennessee Way	Tom Ferrell	615-977-6500	1.7
18-017	Review	Magnetic Hold, Inc.	333 Rockland Rd	Patrick Suttle	615-812-3309	0.98
18-018	Review	HMC- Tristar	355 NSI Rd	Brian Dyer	615-405-0926	0.26
18-019	Review	Gene Brown Elem.	174 Imperial Blvd	David Boger	615-431-0348	0.98
18-020	7/23/2018	Free Hill Properties	300 Free Hill Rd	Mark Hebbeler	615-969-0767	0.15
18-021	Review	NTG North Addition	1241 Avondale Rd	Rebecca Whittaker	615-504-5407	3.2
18-022	Rejected	Clubhouse Bay	166 Carrington Road	Dharmesh Patel	615-406-9955	3.26
18-023	Rejected	Waterford Village Phase 4	186 Sanders Ferry Rd	Donavan Degrie	615-771-0925	6.3
18-024	8/14/2018	Arrowhead Phase 2	Mustang Lane	Duane Allen	615-822-1016	0.98
18-025	Review	TOA Indian Lake Clinic	501 Saundersville Rd	Charles Watkins	cwatkins@oman-gibson.com	2.9
18-026	Review	Indian Lake Center	ILB Near Maple D. N.	Bert Mathews	615-850-2701	0.9
18-027	Review	The Learning Experience	174 Saundersville Road	Tom Krolikowski	224-374-0485	1.24
18-028	Review	Skin Solutions	828 Saundersville Road	Jim Harrison	615-512-5250	1.24
18-029	12/13/2018	Streets of Indian Lake Improve.	300 Indian Lake Blvd	Ralph Terbruggen	513-437-3222	0.75
18-030	Information	247 Scarsdale Drive North	247 Scarsdale Drive No	Nathan Vaccaro	813-293-3500	0.61
18-031	12/14/2018	Sentry Steel	167 Center Point Rd	Bob Shaw	615-826-9552	0.5
18-032	Review	Chik Fil A	1033 Glenbrook Way	Sean Hickman	407-645-5008	0.73
18-033	Review	Stone Ridge Phase 2	Archer Way West	Troy Towe	615-207-5845	4.55
19-001	Review	Stone Ridge Phase 2	Archer Way West	Troy Towe	615-207-5845	4.55
19-002	3/7/2019	HUD Water Treatment	129A Savo Bay	Joe Rewa	jrewa@hendutil.net	1
19-003	Review	Durham Farms Phase 3	Drakes Creek Rd at NSI	Tom Foust	615-405-3371	75
19-004	Review	Saundersville Station 8.1	Settlers Way	Cal Gentry	615-480-5366	36.8
19-005	Review	Indian Lake Storage	101 Cinema Drive	Alex Jacobson	615-571-2197	2.58
19-006	Review	Racetrac- West Main	1077 W. Main	Drew Cunningham	dcunningham@racetrac.com	3.86
19-007	Review	Eagle View	650 NSI	Sid Amin	615-584-3585	4
19-008	Review	Fire Hall #2	Free Hill Rd	David Boger	615-431-0348	1.8
19-009	Review	Taco Bell	Glenbrook Way	Ellen Selle	eselle@gpdgroup.com	0.75
19-010	3/28/2019	Manor Way Lots	Mansker Farms	Larry Hasty	615-306-7942	1.75
19-011	3/29/2019	109 Bluegrass Circle	109 Bluegrass Circle	Bryan Blackman	615-496-6833	0.5
19-012	Review	Southview	104 Wyncrest Way	Milton Curtis	615-351-1648	5
19-013	Review	Hunt Club 11	Hunt Club	Cal Gentry	615-480-5366	12
19-014	Review	Kiddie Academy	145 Indian Lake Blvd	Neal Patel	423-243-7953	1.8
19-015	Pre-con	Parkview Offices	117 Saundersville Road	Randy Harper	615-333-7200	1.69
19-016	Pre-con	ServPro Hville	229 Innovation Way	Cody Sullins	615-943-0251	1.79
19-017	Review	Waterford Village Phase 4	186 Sanders Ferry Rd	Donavan Degrie	615-771-0925	6.3

Attachment 7A(i)

Operations and Maintenance Plan

For

**City of
Hendersonville
Road Department**

**Hendersonville
Sumner County
Tennessee**

**ROAD DEPARTMENT
OPERATIONS AND
MAINTENANCE PLAN**

Facility Name: Road Department

Address: 223 Free Hill Road
Hendersonville, Tennessee
37075

Contact Person: Trace Buerkett

Telephone No: 615-973-3612

Prepared by: Janelle Schlamp, BWSC

Date: _____

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1.0 INTRODUCTION

This document is the Operations and Maintenance Plan (O&M) developed for the City of Hendersonville, Road Department located at 223 Free Hill Road, Hendersonville, TN 37075. This facility falls under the jurisdiction of the following Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit:

NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems

PERMIT NO. TNS075353

1.1 ORGANIZATION OF THE OPERATIONS AND MAINTENANCE PLAN

Section 1 of this O&M Plan provides information regarding stormwater regulations. The section also provides a general discussion of Best Management Practices (BMPs) and identifies those BMPs that are implemented throughout the facility. Section 3 contains the definition and categories for both authorized and unauthorized non-stormwater discharges. Section 4 provides a narrative description of the activities conducted, potential pollutants, and the measures taken to eliminate or reduce the discharge of pollutants to stormwater drainage systems.

1.2 STORMWATER REGULATORY FRAMEWORK

In 1972 the Federal Water Pollution Control Act (known as the Clean Water Act) was amended to effectively prohibit discharge of pollutants to “waters of the United States” from any point source unless the discharge is in compliance with an NPDES Permit. The United States Environmental Protection Agency (USEPA) has delegated administration of the NPDES Program Tennessee to the State of Tennessee. The 1987 amendments of the Clean Water Act added Section 402(p), which established the framework for regulating discharges of pollutants via stormwater from industrial activities and MS4s. Section 402(p) required the USEPA to develop permitting regulations for stormwater discharges from MS4s and from industrial facilities, including construction sites.

The 2016 permit requires that Permittees to develop an Operations and Maintenance Plan to identify BMPs for activities conducted at municipal facilities. This requires that the Permittees develop a pollution prevention strategy to address their public agency facilities and associated activities which are determined by the Permittees to be sources of concern regarding stormwater pollution. The municipal facilities listed in Table 1-1 should have a site-specific O&M Plan.

Road Department Operations & Maintenance Plan

Table 1-1 Municipal Facilities and Associated Activities

Municipal Facility	Activities of Concern Conducted
Corporate Yards, including equipment, transit maintenance, public works, fleet maintenance, and parks and recreation equipment yards	Loading, unloading, handling, and storage of animal wastes, anti-freeze, asphalt, batteries, chemicals, concrete, diesel wastes, emulsions, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water
	Filling of aboveground and underground storage tanks (ASTs and USTs) with fuels
	Dispensing of fuels to vehicles, equipment, and portable fuel containers
	Vehicle and equipment parking and storage
	Vehicle, equipment, and material washing and steam cleaning
	Leak and spill cleanup
	Landscape, garden, and general maintenance and cleaning
Warehouses	Loading, unloading, handling, and storage of materials
	Landscape, garden, and general maintenance and cleaning
Hazardous Materials Storage Facilities	Loading, unloading, handling, and storage of potentially hazardous materials
	Leak and spill cleanup
Parks	Landscape maintenance, paving, painting, solid waste management, fertilizer and pesticide application
	Vehicle, equipment, and material washing
	Leak and spill cleanup
	Landscape, garden, and general maintenance and cleaning

1.3 REVIEW AND REVISION OF THE OPERATIONS AND MAINTENANCE PLAN

The O&M Plan will be reviewed at least annually to determine if any revision is necessary to reflect changes in the facility or changes in the activities conducted that:

- May significantly increase the quantities of pollutants in stormwater runoff;
- Cause a new area of the facility to be exposed to stormwater or authorized non-stormwater discharges; or
- Start-up of an activity that would introduce a new pollutant source at a facility.

In determining if revision of the O&M Plan is necessary, the Facility/Activity Manager will review the Annual Facility/Activity Stormwater Assessment, which is described in Section 5.

2.0 SITE DESCRIPTION

2.1 FACILITY DESCRIPTION

The Facility Description describes the various facility types including locations and on-site activities.

Examples of outdoor activities at this facility include:

- ◆ Loading, unloading, handling, and storage of anti-freeze, batteries, chemicals, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water
- ◆ Filling of aboveground storage tanks (ASTs) with fuels
- ◆ Dispensing of fuels to vehicles, equipment, and portable fuel containers
- ◆ Vehicle and equipment parking and storage
- ◆ Vehicle, equipment, and material washing
- ◆ Leak and spill cleanup
- ◆ Landscape, garden, and general maintenance and cleaning

Figure 2-1a details the activities that take place at the Road Department.

As presented in Figure 2-1b, the majority of the site consists of parking lot draining via overland flow to a tributary of the Cumberland River. Figure 2-1b illustrates key features relevant to the stormwater drainage system and the municipal activities conducted at the Road Department, including potential pollutant sources that may be exposed to precipitation, stormwater runoff, or non-stormwater discharges, drainage patterns (surface flow and storm drains), discharge locations, and structural control features.

Road Department Operations & Maintenance Plan

Figure 2-1.a Facility Description

Outdoor activities at the facility include:

Facility Type: Road Maintenance Facility

- Facility Activities: Vehicle and equipment maintenance
- Vehicle and equipment washing
- Loading, unloading, handling, and storage of pesticides, herbicides
new and used oil, paint products, trash and debris
- General maintenance and cleaning
- Loading and unloading of road salt
- Storage of road salt
- Hot and cold mix asphalt

Facility Type: Fueling Center

- Facility Activities: Filling of aboveground storage tanks with fuels
- Dispensing of fuels to vehicles, equipment, and portable fuel
containers
-
-
-
-

Address: 223 Free Hill Rd
 Acres: Approximately 15.78 acre parcel
 27.6% Impervious Cover

100 Feet

1 inch = 100 feet
 Tennessee State Plane (feet) 4100feet
 North American Datum 1983

BWSC BARKER WADSWORTH BLANKEN & BARNETT, INC.



Road Department Property Features

Operations and Maintenance Plan for City of Hendersonville Road Department

Hendersonville, Sumner County, Tennessee



- Inlet/Outlet
- > Drainage Path
- Road Department Property

Figure 2-1b

2.2 POLLUTION PREVENTION TEAM

The Public Works Superintendent - Roads is responsible for implementing the O&M Plan and for the administrative responsibilities associated with the O&M Plan. Other facility personnel also have implementation responsibilities for the O&M Plan.

Figure 2-2 Pollution Prevention Team

Positions and responsibilities:

Trace Buerkett, Public Works Superintendent - Roads responsibilities include:

- Implementing, administering and revising the O&M Plan
- Implementing the Emergency Response Plan and Procedures
- Inspecting areas to ensure BMPs are being implemented on a daily basis
- Conducting Stormwater Training for facility personnel
- Minimizing the threat of chemical spill to personnel and to the surrounding environment
- Protecting storm drain inlets and sanitary sewer drains from any spillage or contamination once personnel safety is assured

Alana Hibler responsibilities include:

- Inspecting areas to ensure BMPs are being implemented on a daily basis
- Minimizing the threat of chemical spill to personnel and to the surrounding environment
- Protecting storm drain inlets and sanitary sewer drains from any spillage or contamination once personnel safety is assured

Chris Rapp, Stormwater Inspector responsibilities include:

- Conducting a monthly inspection to ensure that BMPs are appropriate and being implemented consistently throughout the facility
- Coordinating Stormwater Training for facility personnel
- Maintaining the necessary records and files

2.3 POLLUTION PREVENTION THROUGH BMPs

2.3.1 What are BMPs?

BMPs are the practices, procedures, policies, prohibitions, schedules of activities, structures or devices that are implemented to prevent or minimize pollutants coming in contact with precipitation, stormwater runoff, or non-stormwater flows. BMPs are also structures or devices that remove pollutants from stormwater runoff before the runoff enters a stormwater drainage system or a surface water. Therefore, BMPs are often categorized as either “source control” BMPs or “treatment control” BMPs.

Source control BMPs include all types of measures designed to prevent pollution at the source, that is, to keep stormwater from contacting pollutants in the first place. Source control BMPs are generally simple, low-maintenance, cost-effective and are broadly applicable. They may be categorized as either non- structural or structural. Good housekeeping is an example of a non-structural source control BMP; a canopy is an example of a structural source control BMP.

Treatment control BMPs are methods of treating stormwater runoff to remove pollutants and are frequently more costly to design, install, and operate than source control BMPs. More importantly, treatment control BMPs are typically not as effective as source control BMPs, and the effectiveness is highly dependent on regular maintenance. Nevertheless, they can be appropriate and effective under certain conditions. However, treatment control BMPs typically do not remove all pollutants from stormwater runoff and should not be regarded as disposal systems.

A list of suggested BMPs for vehicle maintenance/materials storage facilities can be found in Appendix A

2.3.2 Good Housekeeping

Good housekeeping practices include activities that are intended to maintain a clean site and keep equipment in good working order to prevent stormwater quality problems from occurring. Daily cleanup and inspections are the most effective means of achieving good housekeeping. For the most part, good housekeeping is a day-to-day activity that does not require a large expenditure of time or expense, and should be implemented on an ongoing basis. Examples of good housekeeping practices are:

- Tools and materials should be returned to designated storage areas after use;
- Waste materials should be collected and properly disposed after the completion of each job, shift, or day as appropriate;
- Indoor work areas should be neat, uncluttered, and well-ventilated to discourage outdoor work and to allow leaks and spills to be quickly detected and controlled;
- Outdoor work areas should be swept regularly (not hosed) and kept neat and clean;

- Occasionally outdoor work areas may need cleaning beyond sweeping. In such cases, all wash waters should be contained, collected, and properly disposed; and
- Outdoor waste or trash receptacles should be covered and emptied regularly and the adjacent areas inspected for misplaced or wind-blown litter.

2.3.3 Preventive Maintenance

Preventive Maintenance BMPs include regular inspections and maintenance intended to minimize stormwater pollution by performing maintenance activities before problems arise. Equipment failures or equipment that functions poorly may result in the discharge of pollutants to the stormwater drainage system. Therefore, to reduce the likelihood of breakdown or failure, major equipment should have a preventive maintenance schedule for inspection, repair, or replacement of fluids (e.g., hydraulic, lubricating, cooling), greases, seals, hoses, filters, pressure gauges, piping, etc. Paved areas and landscaping should not be allowed to degrade to the point where they erode and contribute pollutants to runoff. Leaky roofs, broken doors, cracked pavement and berms, and any other enclosure or structural defects that may impact the quality of stormwater runoff should be promptly repaired. Structural BMPs and storm drains within facility boundaries also need to be inspected and maintained regularly.

2.3.4 Proper Materials Handling and Storage

Materials handling and storage BMPs relate to controlling the potential for leaks, spills and losses of materials delivered, used, and stored at a facility. Spills and leaks of materials can accumulate in soils or on surfaces and be carried away in stormwater runoff or authorized non-stormwater discharges.

Figure 2-3a Materials Handling and Storage BMPs

BMPs:

BMP Title Material Use _____ :

- ◆ Limit quantity of materials to that required
- ◆ Read and follow manufacturer directions for use of materials
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

BMP Title Material Storage _____ :

- ◆ Store outdoor materials such as dirt, gravel and coal mix on a concrete pad
- ◆ Store herbicides and pesticides indoors away from storm drains
- ◆ Store fuel and lubricants indoors away from storm drains in a flammables cabinet where needed
- ◆ Store hazardous materials indoors in a flammables cabinet
- ◆ Locate storage areas away from vehicle or equipment paths to reduce potential for accident related leaks or spills
- ◆ Conduct regular inspections for leaks and control dates
- ◆ Store road salt on a concrete pad under a rood

BMP Title Secondary Containment _____ :

- ◆ Provide concrete secondary containment for gasoline and diesel tanks
- ◆ Test and drain uncontaminated water from secondary containment following rain events
- ◆ Maintain secondary containment and tank area free of trash and debris
- ◆ Conduct regular inspections for leaks
- ◆ _____
- ◆ _____

2.3.5 Proper Waste Handling

Waste handling BMPs relate to properly controlling, collecting, storing, and disposing of wastes that are generated at a facility. All facility personnel should be aware that disposing any waste (including wash waters) into a storm drain inlet or stormwater conveyance (e.g., streets) is considered illegal dumping. Likewise, disposing of waste (including wash waters) onto a paved or unpaved surface such that it may be carried to a storm drain inlet or stormwater conveyance (e.g., streets) is also considered illegal dumping.

Figure 2-3b Waste Handling BMPs

Waste Handling BMPs for this facility are:

- ◆ Sweep or vacuum work areas to collect debris frequently
- ◆ Store waste materials indoors to prevent exposure to stormwater
- ◆ Regular pick up of used oil to prevent leaks or overflow
- ◆ Locate the waste storage area away from vehicle and equipment paths to reduce the potential for accident-related releases
- ◆ Conduct regular inspections for leaks and control dates
- ◆ Locate dumpsters on concrete pads and limit access to the extent possible
- ◆ Arrange for regular waste disposal
- ◆ Collect grass clippings to keep out of drainage swales

2.3.6 Spill Prevention and Response

Spill clean-up can be labor-intensive and costly involving expenses to contain the spill, collecting the spilled substance, proper disposal of spill materials, and report filing to regulatory agencies, not to mention possible monetary fines. Spills and leaks are some of the most significant sources of water pollution and are, in most cases, avoidable.

Spill prevention and control procedures include:

- Placing bollards, berms and containment features around structures or areas where fluids are stored, so releases can be prevented, easily detected, and controlled;
- Using drip pans for maintenance operations involving fluids and under leaking vehicles and equipment waiting repair;
- Placing spill kits in areas where fluids are stored or in areas where activities may result in a spill;
- Providing training for proper use of materials and equipment used during operations and maintenance activities;
- Providing training for proper use of spill response equipment and supplies; and
- Conducting outdoor maintenance activities on paved surfaces to allow for easy detection, control, and cleanup of spills.

Spill prevention, control, and cleanup applies to all materials and wastes—not only hazardous substances. The toxic water quality effects from spills of hazardous substances (e.g., acids, oils, greases, fuels, solvents, pesticides) are commonly understood. However, non-hazardous materials—for example, sand, litter, and soaps, among others—can also greatly impact water quality. To protect water quality a specific list of spill prevention and response BMPs was developed.

Figure 2-3c Spill Prevention and Control Procedures

Spill prevention and control procedures for this facility are:

- ◆ Using drip pans for maintenance operations involving fluids and under leaking vehicles and equipment awaiting repair
- ◆ Providing training for proper use of materials and equipment used during operations and maintenance activities
- ◆ Providing secondary containment for gasoline and diesel tanks
- ◆ Providing training for proper vehicle and equipment fueling to prevent spills
- ◆ Locking gasoline and diesel tank valves when not in use
- ◆ Providing training for proper use of spill response equipment and supplies
- ◆ Performing vehicle and equipment maintenance operations indoors

2.4 OTHER RELEVANT FACILITY PLANS

In addition to this O&M Plan, other facility specific environmental compliance plans that complement the goal of reducing and preventing pollutant discharges are identified in Figure 2-4. Where these plans are located is also identified.

Figure 2-4 Other Facility Specific Environmental Compliance Plan(s)

Other Facility Specific Environmental Compliance Plan(s) for this facility include:

- ◆ N/A _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

2.5 TRAINING FOR FACILITY PERSONNEL

Helen Morrison, Stormwater Coordinator is responsible for Stormwater Management training:

The aforementioned position coordinates training related to stormwater management on at least an annual basis to review specific responsibilities for implementing this O&M Plan, what and how to accomplish those responsibilities, including BMP implementation. This training typically occurs in September shortly before the start of the wet season (October 1 through May 30).

Additionally, general awareness training is provided annually to all employees whose activities may impact stormwater discharges. The purpose of this training is to educate workers on activities that can impact stormwater discharges, and to help in the implementation of BMPs.

Attach training attendance sheets and any other training documentation in Appendix C. Include name of instructor, date and time of training, location of training and training participants.

The training records are kept for a period of no less than five years.

3.0 DEFINITION AND CATEGORIES OF NON-STORMWATER DISCHARGES

A non-stormwater discharge is any discharge or flow to a stormwater drainage system that is not composed entirely of stormwater runoff. The MS4 Permits require that the Permittees prohibit the discharge of non-stormwater, including those from public agency activities, into their respective MS4s and to the Waters of the U.S. unless the discharge is authorized by a respective MS4 Permit or regulated under a separate NPDES permit.

3.1 AUTHORIZED NON-STORMWATER DISCHARGES

The 2016 Phase II Permit provides that certain types of non-stormwater discharges are authorized unless they are identified as a significant source of pollutants.

Examples of “conditionally” authorized non-stormwater discharges include:

- Discharges covered by a NPDES permit, Waste Discharge Requirements, or waivers issued by the Regional or State Board. Unless a Permittee is the discharger, the permittees shall not be responsible for any exceedance of Receiving Water Limitations associated with such discharges;
- Discharges from potable water line flushing and other potable water sources;
- Emergency water flows (i.e., flows necessary for the protection of life and property) do not require BMPs and need not be prohibited. However, appropriate BMPs shall be considered where practicable when not interfering with emergency public health and safety issues;
- Discharges from landscape irrigation, lawn/garden watering and other irrigation waters;
- Air conditioning condensate;
- Rising ground waters and natural springs;
- Groundwater infiltration (as defined in 40 CFR 35.2005(20)) and “uncontaminated pumped groundwater”);
- Passive foundation drains;
- Passive footing drains;
- Water from crawl space pumps;
- Non-commercial vehicle washing, (e.g. residential car washing (excluding engine degreasing) and car washing fundraisers by non-profit organization);
- Flows from riparian habitats and wetlands;
- Dechlorinated swimming pool discharges;
- Waters not otherwise containing wastes as defined in Water Code Section 13050(d); and
- Other types of discharges identified and recommended by the Permittees and approved by the Regional Board.

4.0 MUNICIPAL ACTIVITIES AND MATERIALS, POTENTIAL POLLUTANTS AND ASSOCIATED BMPs

4.1 SIGNIFICANT MATERIALS

A number of materials are used or stored on-site. Table 4-1 summarizes these materials and how they are received or stored at the facility. The table gives examples of the types of materials that should be included in the list of significant materials. It is not all-inclusive. Only fill in those that apply and add those appropriate to this facility that have not already been listed.

Table 4-1 List of Significant Materials

Material Name	Typical Quantity	Receiving and Shipping Location	Handling Location	Frequency
EXAMPLE: Acid	12 gal	Maintenance Shop	Maintenance Shop	Twice weekly
Acid				
Adhesives and sealants				
Aggregate				
Animal Wastes				
Asphalt				
Brake fluid	<1 gal	Maintenance Building	Maintenance Building	As needed
Concrete				
Coolant (new)	<1 gal	Maintenance Building	Maintenance Building	As needed
Coolant (used)	<1 gal	Maintenance Building	Maintenance Building	As needed
Detergents				
Diesel fuel	8,000 gal	Fueling Center	Fueling Center	Every 2 weeks
Fertilizers				
Gasoline	12,000 gal	Fueling Center	Fueling Center	Every 2 weeks
Gravel				
Hydraulic fluid				
Lubricants				
Motor oil (new)	<1 gal	Maintenance Building	Maintenance Building	As needed
Motor oil (used)	50 gal	Maintenance Building	Maintenance Building	As needed
Paint Products	5 gal	Maintenance Building	Maintenance Building	As needed
Pesticides/Herbicides	X?	Maintenance Building	Maintenance Building	Once per year
Sand				
Soil amendments				
Solvents				
Coal Mix	10 ton	Covered storage area	Covered storage area	As needed
Top Soil	20 ton	Covered storage area	Covered storage area	As needed
Road Salt	40-100 tons	Covered salt barn	Covered salt barn	Once per year
Diesel additive	X?	Fueling Center	Fueling Center	Every 2 weeks

4.2 DESCRIPTION OF SIGNIFICANT MATERIALS AND ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

Table 4-2 briefly describes how, when, where and how often each of the materials listed above is delivered, used and stored. Using this information, material's potential for being a pollutant source is assessed.

Road Department Operations & Maintenance Plan

Table 4-2 Identification of Significant Materials and Assessment of Potential Pollutant Sources

Activity	Description
Vehicle and Equipment Fueling	Vehicle and equipment fueling is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any spills or leaked fluids located at the fueling center and subsequently drain over the parking lot down a grassed hillside into the stream. Pollutants located at the fueling area include diesel, diesel additive and gasoline. Fuels are delivered approximately every two weeks. Gasoline is pumped into a 12,000 gallon tank contained in concrete containment. Diesel is pumped into a 8,000 gallon tank contained in concrete containment. Diesel additive is contained in a plastic tote adjacent to the fuel tanks.
Vehicle and Equipment Parking and Storage	Vehicle and equipment storage is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any leaked fluids from the parking and storage areas and subsequently drain over the parking lot down a grassed hillside into the stream. Pollutants could include leaked oil, fuel, or coolant. Vehicles and equipment are parked both under cover and outside when not in use.
Vehicle and Equipment Washing	Vehicle and equipment washing is a potential source of stormwater pollution at the facility. Washwater has the potential to wash any leaked fluids or sediment from the vehicles in the washing area down a grassed hillside into the stream. Pollutants could include leaked oil, fuel, coolant or sediment.
Material Handling and Storage	Material handling and storage is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any leaked fluids from containers spilled during loading or unloading of materials across the parking lot down a grassed hillside to the stream. Runoff from the salt pile could also wash down the hillside to the stream. Pollutants could include salt, oil, coolant, paint, pesticides, or fertilizer.
Landscape, Garden, and General Maintenance and Cleaning	Landscape, garden and general maintenance and cleaning is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any spills or leaks of paints, vehicle fluids, herbicides, or pesticides to the drainage ditches and storm drain inlets.

4.3 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES AND ASSOCIATED BMPs

Table 4-3 describes potential pollutant sources and BMPs for the various facility types at the Road Department.

Road Department Operations & Maintenance Plan

Table 4-3 Identification of Potential Pollutant Sources and List of Current BMPs

Area/Activity	Pollutant Source	Pollutant	BMPs
Vehicle and Equipment Fueling is performed in the fueling center	<ul style="list-style-type: none"> • Spills caused by tank or container overflowing • Spills and leaks during deliveries • Rainfall on fueling area 	Gasoline or diesel	<ul style="list-style-type: none"> • Train employees in proper fueling and cleanup procedures. • Use absorbent materials on spills • Install covered spill kits near fueling area
Vehicle and Equipment Parking and Storage is located on the paved area outside as well as under cover	<ul style="list-style-type: none"> • Leaks from parked vehicles or stored equipment 	Oil, fuel, coolant	<ul style="list-style-type: none"> • Train employees in proper cleanup of leaks • Regularly inspect vehicles and equipment for leaks • Use drip pans under leaking vehicles and equipment
Vehicle and Equipment Washing is located outside the buildings.	Washing sediment and debris off vehicles	Sediment, vehicle fluids	<ul style="list-style-type: none"> • Direct wash water toward surrounding, existing vegetation
Material Handling and Storage is located in the maintenance building. Salt storage is located in the salt barn.	Container spills or leaks	Oil, coolant, paint, pesticides, fertilizer	<ul style="list-style-type: none"> • Develop procedures for loading or unloading materials • Conduct loading and unloading in dry weather • Pave loading areas with concrete • Train employees in spill containment and cleanup
Landscape, Garden and General Maintenance and Cleaning is performed around the facility	<ul style="list-style-type: none"> • Overspray of herbicides • Spills or leaks of fertilizers, pesticides, or paints 	Herbicides, fertilizer, paint	<ul style="list-style-type: none"> • Use proper landscape management and maintenance procedures • Properly recycle trimmings • Recycle residual paints

5.0 ANNUAL FACILITY OR ACTIVITY STORMWATER ASSESSMENT

An Annual Stormwater Assessment helps to assure that significant changes in facilities or activities are identified and can then be reflected in the O&M Plan. The Annual Stormwater Assessment includes:

- Visual inspection of all potential sources of pollutants that may enter the stormwater drainage system via stormwater or non-stormwater discharges;
- A review and assessment of all BMPs to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed; and
- Visual inspection of equipment needed to implement the O&M Plan, such as spill response equipment, drip pans, brooms or vacuum sweepers, or containers for used absorbents.

The Annual Facility or Activity Stormwater Assessment should be documented:

- Identification of personnel performing the evaluation;
- The date(s) of the evaluation;
- Findings of the evaluation;
- Recommended modifications of the O&M Plan;
- Schedule for implementing O&M Plan revisions;

and Any incidents of non-compliance and the corrective actions taken.

Following the evaluation, revisions, if needed, to the O&M Plan should be completed within 90 days. Assessment forms may be found in Appendix B.

Completed Assessment forms should be placed in Appendix D. Table 5-1 can be used to track annual assessments and follow through on recommendations.

Table 5-1 Assessment Log

Assessment Date (mm/dd/yyyy)	Assessor (Name & Position)	Revisions Required? (Y/N)	Follow Through (Date or N/A)
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

APPENDIX A
SUGGESTED BMPs FOR VEHICLE MAINTENANCE/MATERIALS STORAGE
FACILITIES

SUGGESTED BMPs FOR VEHICLE MAINTENANCE/MATERIALS STORAGE FACILITIES

The following best management practices (BMPs) were adapted from USEPA's *Stormwater Multi-Sector General Permit for Industrial Activities* (September 1995), and the County of Los Angeles Department of Public Works model program and include additional guidance on using treatment controls. Although they were developed for industrial facilities, they serve as good general guidance for vehicle maintenance/material storage facilities.

VEHICLE MAINTENANCE FACILITIES

Fueling

- Use spill and overflow protection.
- Minimize run-on of stormwater into the fueling area by grading the area such that stormwater only runs off.
- Reduce exposure of the fuel area to stormwater by covering the area.
- Use dry cleanup methods for fuel area rather than hosing the fuel area down.
- Use proper petroleum spill control.
- Perform preventive maintenance on storage tanks to detect potential leaks before they occur.
- Inspect the fueling area to detect problems before they occur.
- Train employees on proper fueling techniques.

Vehicle and Equipment Maintenance

- Maintain an organized inventory of materials used in the maintenance shop.
- Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly.
- Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).
- Drain oil filters before disposal or recycling.
- Drain and contain all fluids from wrecked vehicles and "parts" cars.
- Store cracked batteries in a nonleaking secondary container.
- Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers.
- Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.
- Plug floor drains that are connected to the storm or sanitary sewer.
- Alternatively, install a sump that is pumped regularly.
- Inspect the maintenance area regularly for proper implementation of control measures.
- Train employees on proper waste control and disposal procedures.

Outdoor Vehicle and Equipment Storage and Parking

- Use drip pans under all vehicles and equipment waiting for maintenance.
- Cover the storage area with a roof.
- Inspect the storage yard for filling drip pans and other problems regularly.
- Train employees on procedures for storage and inspection items.

Vehicle or Equipment Washing Areas

- Avoid washing parts or equipment outside.
- Use phosphate-free biodegradable detergents.
- Designate an area for cleaning activities.
- Contain and recycle washwaters.

- Ensure that washwaters drain well.
- Inspect cleaning area regularly.
- Train employees on proper washing procedures.

Liquid Storage in Above Ground Storage

- Maintain good integrity of all storage containers.
- Install safeguards (such as diking or berming) against accidental releases at the storage area.
- Inspect storage tanks to detect potential leaks and perform preventive maintenance.
- Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks.
- Train employees on proper filling and transfer procedures.

MATERIAL STORAGE AREAS

Outdoor Unloading and Loading

- Confine loading/unloading activities to a designated area.
- Consider performing loading/unloading activities indoors or in a covered area.
- Consider covering loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps).
- Close storm drains during loading/unloading activities in surrounding areas.
- Avoid loading/unloading materials in the rain.
- Inspect the unloading/loading areas to detect problems before they occur.
- Inspect all containers prior to loading/unloading of any raw or spent materials.
- Consider berming, curbing, or diking loading/unloading areas.
- Install dead-end sumps where spilled materials could be directed.
- Place drip pans under hoses.
- Use dry clean-up methods instead of washing the areas down.
- Train employees on proper loading/unloading techniques and spill prevention and response.

Outdoor Material Storage

- Confine storage of materials, parts, and equipment to designated areas.
- Consider secondary containment using curbing, berming, or diking all liquid storage areas.
- Train employees on proper waste control and disposal.
- Train employees in spill prevention and response.
- Consider covering tanks.
- Ensure that all containers are closed (e.g., valves shut, lids sealed, caps closed).
- Wash and rinse containers indoors before storing them outdoors.
- If outside or in covered areas, minimize run on of stormwater by grading the land to divert flow away from containers.
- Perform leak detection and container integrity testing.
- Direct runoff to onsite retention pond.
- Inventory all raw and spent materials.
- Place tubs around vents and stacks to collect particulates.
- Inspect air emission control systems (e.g., baghouses) regularly, and repair or replace when necessary.
- Store wastes in covered, leak proof containers (e.g., dumpsters, drums).
- Consider shipping all wastes to offsite landfills or treatment facilities.
- Ensure hazardous waste disposal practices are performed in accordance with federal, state, and local requirements.

The following best management practices (BMPs) were adapted from the State of Massachusetts Guidelines on Deicing Chemical (Road Salt) Storage and the Salt Storage Handbook published by the Salt Institute.

Road Salt Storage

- Store salt on a flat, paved (impervious) site under a roof
- Provide adequate space for the salt pile
- Provide runoff collection and containment
- Provide adequate room for maneuvering of loading and unloading equipment
- Grade site so that stormwater drains away from, not onto the salt pile
- Install curbs to direct or collect runoff from the pile
- Brine collected can be reapplied to the stockpile during dry seasons or applied to spreader loads prior to street application

APPENDIX B
ANNUAL FACILITY/ACTIVITY STORMWATER ASSESSMENT FORM
AND CHECKLIST

(Facility)

Stormwater Management Program
Annual Site/Activity Assessment

1. Name of Building or Operation: _____

2. Operation Representative: _____

Position: _____ Phone No.: _____

	<u>Yes</u>	<u>No</u>	<u>Not Applicable</u>
3. Facility's O&M Plan easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Awareness of O&M Plan by facility personnel? (Random survey of employees of site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Facility's Emergency Response Plan easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Awareness of Emergency Response Plan by facility personnel? (Random survey of employees on site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Evaluation Checklist (page 2 of 2) completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was any stormwater pollution prevention training conducted during the year?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Were non-stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Were stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Evaluation Notes: _____

Corrective Measures Recommended: _____

Evaluation Conducted By: _____ Date: _____

This completed evaluation was reviewed with me on: _____
Date

Operation Representative (signature): _____

Assessment Checklist

Activities – Check each activity present at the site.	Effectiveness Rating *				
	1	2	3	4	5
Vehicle and Equipment Fueling: 1. Fueling area is designed to prevent run on of stormwater and the runoff of spills 2. Employees are trained in proper fueling and cleanup procedures 3. Absorbent materials are used on small spills rather than hosing down 4. Daily inspections. 5. Pump island is inspected regularly for spills and/or leaks	<input type="checkbox"/>				
Vehicle and Equipment Washing/Steam Cleaning 1. A designated wash are is used 2. The wash area is equipped with a clarifier and is connected to a sanitary sewer 3. The designated wash area is properly designed 4. The clarifier is cleaned regularly	<input type="checkbox"/>				
Vehicle and Equipment Maintenance and Repair 1. Maintenance is done in a designated area only 2. Equipment is kept clean, with no build-up of oil and grease. 3. Drip pans and containers are used under areas that may drip 4. Used oil and oil filters, antifreeze, batteries, fluids, etc. are recycled	<input type="checkbox"/>				
Outdoor Loading/Unloading of Materials 1. Delivery vehicles are parked so spills and leaks can be contained 2. The loading/unloading dock is covered to reduce exposure of materials to rain 3. The loading/unloading area is designed to prevent stormwater run on 4. Fork lift operators are properly trained	<input type="checkbox"/>				
Outdoor Container Storage of Materials 1. Materials are covered to protect from rainfall 2. Materials are protected from run on and runoff of stormwater 3. Waste dumpsters are covered 4. Hazardous materials are stored in a properly designed storage area	<input type="checkbox"/>				
Outdoor Process Equipment O & M 1. The area is covered with a permanent roof 2. Berming and drainage routing is used to minimize contact of stormwater 3. The equipment are is swept after each use of machine or at the end of each day	<input type="checkbox"/>				
Outdoor Storage of Raw Materials/Products 1. The storage area is covered with a roof 2. Materials are covered with a temporary plastic covering 3. Berms and curbing are used to prevent materials from entering the storm drain system 4. Parking lots and/or other surface areas are swept regularly near the material storage area	<input type="checkbox"/>				
Waste Handling and Disposal 1. Usage and disposal inventory is used to limit waste generation 2. Materials are recycled whenever possible 3. Wastes are segregated and separated 4. Storage area is covered, enclosed and bermed	<input type="checkbox"/>				
Contaminated or Erodible Surface Areas 1. Erosion can be controlled by preservation of natural vegetation 2. Surface area is regularly inspected to determine is revegetation is needed 3. Geosynthetics are used as an alternative for the surface area 4. Sandbags or berms are needed to prevent stormwater pollution	<input type="checkbox"/>				
Building and Grounds Maintenance 1. Pesticides and fertilizers are used and stored properly 2. Paved areas are swept instead of washed down 3. Wash water, sweepings and sediments are disposed of properly 4. Planting of natural vegetation reduces water, fertilizer and/or pesticide needs	<input type="checkbox"/>				
Building Repair, Remodeling and Construction 1. Materials used in repair and remodeling (paints, etc.) are stored properly 2. Soil erosion control techniques are used 3. Good housekeeping practices are used	<input type="checkbox"/>				

* 1- No BMPs used and stormwater pollution likely. 2- Some BMPs used but not effective. 3- Some BMPs used and moderately effective.
 4- Source control BMPs used and very effective/structural BMPs needed. 5- All necessary BMPs used and very effective.

APPENDIX C
TRAINING DOCUMENTATION

APPENDIX D
COMPLETED ASSESSMENT FORMS

**Operations and Maintenance Plan
For
City of
Hendersonville
Drakes Creek Park**

**Hendersonville
Sumner County
Tennessee**

**DRAKES CREEK
PARK OPERATIONS
AND MAINTENANCE
PLAN**

Facility Name: Drakes Creek Park

Address: 120 East Main Street
Hendersonville, Tennessee
37075

Contact Person: Dallas Long

Telephone No: 615-590-4618

Prepared by: Janelle Schlamp, BWSC

Date: _____

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1.0 INTRODUCTION

This document is the Operations and Maintenance Plan (O&M) developed for the City of Hendersonville, Drakes Creek Park located at 120 East Main Street, Hendersonville, TN 37075. This facility falls under the jurisdiction of the following Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit:

NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems

PERMIT NO. TNS075353

1.1 ORGANIZATION OF THE OPERATIONS AND MAINTENANCE PLAN

Section 1 of this O&M Plan provides information regarding stormwater regulations. The section also provides a general discussion of Best Management Practices (BMPs) and identifies those BMPs that are implemented throughout the facility. Section 3 contains the definition and categories for both authorized and unauthorized non-stormwater discharges. Section 4 provides a narrative description of the activities conducted, potential pollutants, and the measures taken to eliminate or reduce the discharge of pollutants to stormwater drainage systems.

1.2 STORMWATER REGULATORY FRAMEWORK

In 1972 the Federal Water Pollution Control Act (known as the Clean Water Act) was amended to effectively prohibit discharge of pollutants to “waters of the United States” from any point source unless the discharge is in compliance with an NPDES Permit. The United States Environmental Protection Agency (USEPA) has delegated administration of the NPDES Program Tennessee to the State of Tennessee. The 1987 amendments of the Clean Water Act added Section 402(p), which established the framework for regulating discharges of pollutants via stormwater from industrial activities and MS4s. Section 402(p) required the USEPA to develop permitting regulations for stormwater discharges from MS4s and from industrial facilities, including construction sites.

The 2016 permit requires that Permittees to develop an Operations and Maintenance Plan to identify BMPs for activities conducted at municipal facilities. This requires that the Permittees develop a pollution prevention strategy to address their public agency facilities and associated activities which are determined by the Permittees to be sources of concern regarding stormwater pollution. The municipal facilities listed in Table 1-1 should have a site-specific O&M Plan.

Drakes Creek Park Operations & Maintenance Plan

Table 1-1 Municipal Facilities and Associated Activities

Municipal Facility	Activities of Concern Conducted
Corporate Yards, including equipment, transit maintenance, public works, fleet maintenance, and parks and recreation equipment yards	Loading, unloading, handling, and storage of animal wastes, anti-freeze, asphalt, batteries, chemicals, concrete, diesel wastes, emulsions, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water
	Filling of aboveground and underground storage tanks (ASTs and USTs) with fuels
	Dispensing of fuels to vehicles, equipment, and portable fuel containers
	Vehicle and equipment parking and storage
	Vehicle, equipment, and material washing and steam cleaning
	Leak and spill cleanup
	Landscape, garden, and general maintenance and cleaning
Warehouses	Loading, unloading, handling, and storage of materials
	Landscape, garden, and general maintenance and cleaning
Hazardous Materials Storage Facilities	Loading, unloading, handling, and storage of potentially hazardous materials
	Leak and spill cleanup
Parks	Landscape maintenance, paving, painting, solid waste management, fertilizer and pesticide application
	Vehicle, equipment, and material washing
	Leak and spill cleanup
	Landscape, garden, and general maintenance and cleaning

1.3 REVIEW AND REVISION OF THE OPERATIONS AND MAINTENANCE PLAN

The O&M Plan will be reviewed at least annually to determine if any revision is necessary to reflect changes in the facility or changes in the activities conducted that:

- May significantly increase the quantities of pollutants in stormwater runoff;
- Cause a new area of the facility to be exposed to stormwater or authorized non-stormwater discharges; or
- Start-up of an activity that would introduce a new pollutant source at a facility.

In determining if revision of the O&M Plan is necessary, the Facility/Activity Manager will review the Annual Facility/Activity Stormwater Assessment, which is described in Section 5.

2.0 SITE DESCRIPTION

2.1 FACILITY DESCRIPTION

The Facility Description describes the various facility types including locations and on-site activities.

Examples of outdoor activities at this facility include:

- ◆ Loading, unloading, handling, and storage of anti-freeze, batteries, chemicals, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water
- ◆ Filling of aboveground storage tanks (ASTs) with fuels
- ◆ Dispensing of fuels to vehicles, equipment, and portable fuel containers
- ◆ Vehicle and equipment parking and storage
- ◆ Vehicle, equipment, and material washing
- ◆ Leak and spill cleanup
- ◆ Landscape, garden, and general maintenance and cleaning

Figure 2-1a details the activities that take place at Drakes Creek Park.

As presented in Figure 2-1b, the majority of the site consists of athletic fields draining via shallow swales to Drakes Creek or one of its tributaries. The remainder of the site consists of parking lots and one maintenance area that drains to inlets and then outfall into Drakes Creek or its tributaries

Figure 2-1c illustrates key features relevant to the stormwater drainage system and the municipal activities conducted at the park maintenance facility, including potential pollutant sources that may be exposed to precipitation, stormwater runoff, or non-stormwater discharges, drainage patterns (surface flow and storm drains), discharge locations, and structural control features.

Figure 2-1.a Facility Description

Outdoor activities at the facility include:

Facility Type: Park

- Facility Activities:
- Landscape and field maintenance
 - General maintenance and cleaning
 - Vehicle and equipment washing
 -
 -
 -
 -

Facility Type: Park Maintenance Facility

- Facility Activities:
- Vehicle and equipment parking and storage
 - Vehicle and equipment washing
 - Filling of aboveground storage tanks with fuels
 - Dispensing of fuels to vehicles, equipment, and portable fuel containers
 - Loading, unloading, handling, and storage of fertilizer, pesticides, new and used oil, paint products, trash and debris
 - Leak and spill clean up
 - Landscape, garden, and general maintenance and cleaning
 -



Address: 120 East Main Street
 Acre: Approximately 128 acre parcel
 14.95% Impervious Cover

400 Feet

1 inch = 400 feet
 Tennessee State Plane (feet) 4100kps
 North American Datum 1983

BWSC
 BAKER
 BROADBENT
 &
 BARNHART, INC.



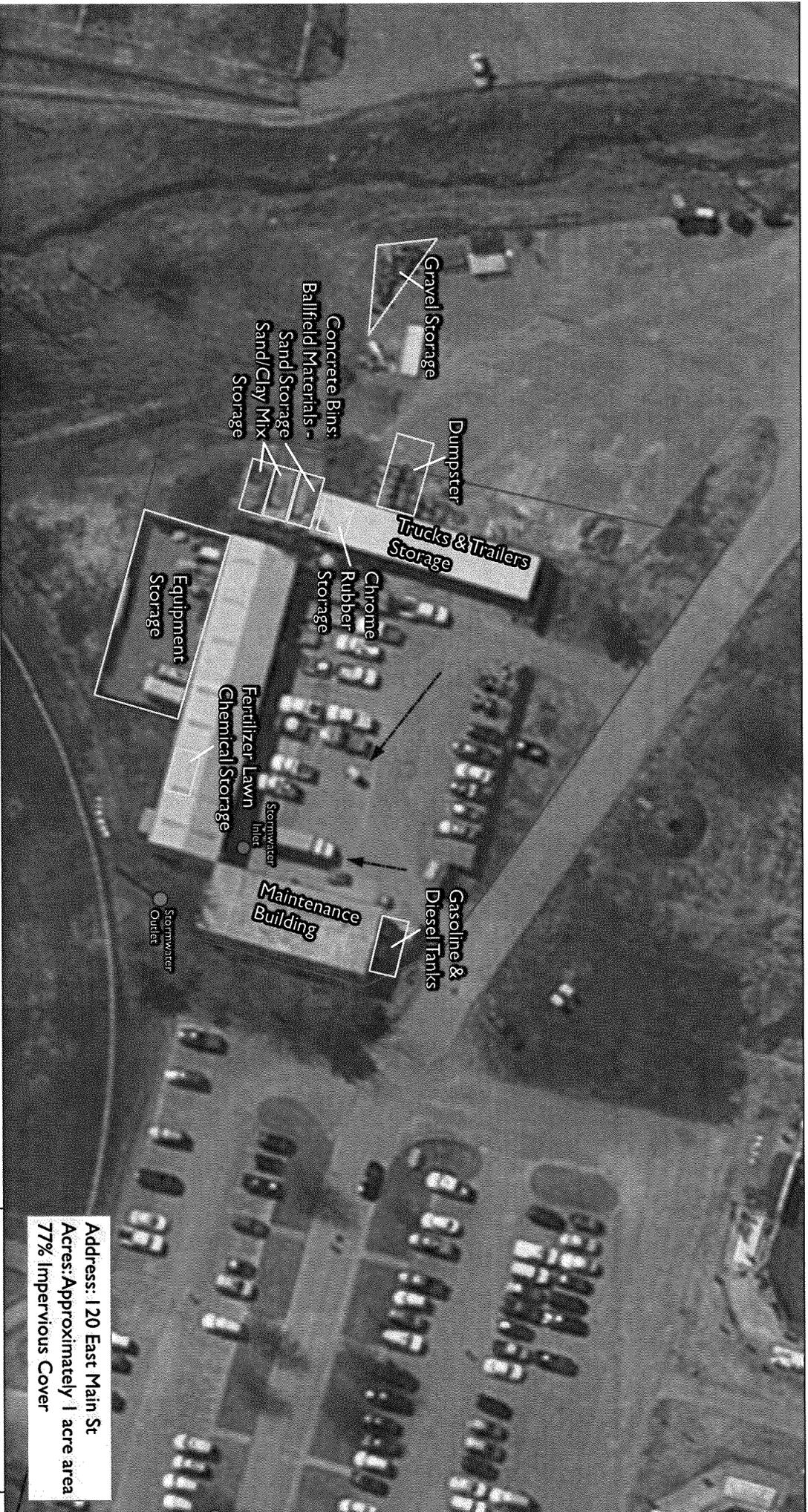
Drake's Creek Park Drainage Features

Operations and Maintenance Plan for Drake's Creek Park

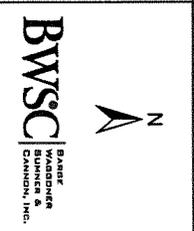
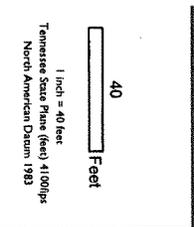
Hendersonville, Sumner County, Tennessee

- Drainage Path
- Grassed Ditch/Swale
- ▭ Maintenance Area
- Stormwater Inlet
- Drainage Outlet

Figure 2-1b



Address: 120 East Main St
 Acres: Approximately 1 acre area
 77% Impervious Cover



Maintenance Area Features

Operations and Maintenance Plan for Drake's Creek Park

Hendersonville, Sumner County, Tennessee

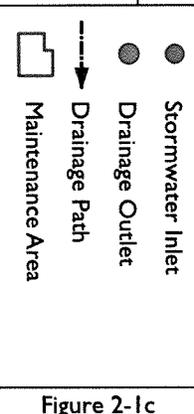


Figure 2-1c

2.2 POLLUTION PREVENTION TEAM

The Maintenance Supervisor is responsible for implementing the O&M Plan and for the administrative responsibilities associated with the O&M Plan. Other facility personnel also have implementation responsibilities for the O&M Plan.

Figure 2-2 Pollution Prevention Team

Positions and responsibilities:

Jeremy Grenat, Assistant Supervisor responsibilities include:

- Implementing, administering and revising the O&M Plan
- Implementing the Emergency Response Plan and Procedures
- Inspecting areas to ensure BMPs are being implemented on a daily basis
- Conducting Stormwater Training for facility personnel
- Minimizing the threat of chemical spill to personnel and to the surrounding environment
- Protecting storm drain inlets and sanitary sewer drains from any spillage or contamination once personnel safety is assured

Chris Rapp, Stormwater Inspector responsibilities include:

- Conducting a monthly inspection to ensure that BMPs are appropriate and being implemented consistently throughout the facility
- Coordinating Stormwater Training for facility personnel
- Maintaining the necessary records and files

2.3 POLLUTION PREVENTION THROUGH BMPs

2.3.1 What are BMPs?

BMPs are the practices, procedures, policies, prohibitions, schedules of activities, structures or devices that are implemented to prevent or minimize pollutants coming in contact with precipitation, stormwater runoff, or non-stormwater flows. BMPs are also structures or devices that remove pollutants from stormwater runoff before the runoff enters a stormwater drainage system or a surface water. Therefore, BMPs are often categorized as either “source control” BMPs or “treatment control” BMPs.

Source control BMPs include all types of measures designed to prevent pollution at the source, that is, to keep stormwater from contacting pollutants in the first place. Source control BMPs are generally simple, low-maintenance, cost-effective and are broadly applicable. They may be categorized as either non-structural or structural. Good housekeeping is an example of a non-structural source control BMP; a canopy is an example of a structural source control BMP.

Treatment control BMPs are methods of treating stormwater runoff to remove pollutants and are frequently more costly to design, install, and operate than source control BMPs. More importantly, treatment control BMPs are typically not as effective as source control BMPs, and the effectiveness is highly dependent on regular maintenance. Nevertheless, they can be appropriate and effective under certain conditions. However, treatment control BMPs typically do not remove all pollutants from stormwater runoff and should not be regarded as disposal systems.

A list of suggested BMPs for vehicle maintenance/materials storage facilities can be found in Appendix A

2.3.2 Good Housekeeping

Good housekeeping practices include activities that are intended to maintain a clean site and keep equipment in good working order to prevent stormwater quality problems from occurring. Daily cleanup and inspections are the most effective means of achieving good housekeeping. For the most part, good housekeeping is a day-to-day activity that does not require a large expenditure of time or expense, and should be implemented on an ongoing basis. Examples of good housekeeping practices are:

- Tools and materials should be returned to designated storage areas after use;
- Waste materials should be collected and properly disposed after the completion of each job, shift, or day as appropriate;
- Indoor work areas should be neat, uncluttered, and well-ventilated to discourage outdoor work and to allow leaks and spills to be quickly detected and controlled;
- Outdoor work areas should be swept regularly (not hosed) and kept neat and clean;

- Occasionally outdoor work areas may need cleaning beyond sweeping. In such cases, all wash waters should be contained, collected, and properly disposed; and
- Outdoor waste or trash receptacles should be covered and emptied regularly and the adjacent areas inspected for misplaced or wind-blown litter.

2.3.3 Preventive Maintenance

Preventive Maintenance BMPs include regular inspections and maintenance intended to minimize stormwater pollution by performing maintenance activities before problems arise. Equipment failures or equipment that functions poorly may result in the discharge of pollutants to the stormwater drainage system. Therefore, to reduce the likelihood of breakdown or failure, major equipment should have a preventive maintenance schedule for inspection, repair, or replacement of fluids (e.g., hydraulic, lubricating, cooling), greases, seals, hoses, filters, pressure gauges, piping, etc. Paved areas and landscaping should not be allowed to degrade to the point where they erode and contribute pollutants to runoff. Leaky roofs, broken doors, cracked pavement and berms, and any other enclosure or structural defects that may impact the quality of stormwater runoff should be promptly repaired. Structural BMPs and storm drains within facility boundaries also need to be inspected and maintained regularly.

2.3.4 Proper Materials Handling and Storage

Materials handling and storage BMPs relate to controlling the potential for leaks, spills and losses of materials delivered, used, and stored at a facility. Spills and leaks of materials can accumulate in soils or on surfaces and be carried away in stormwater runoff or authorized non-stormwater discharges.

Figure 2-3a Materials Handling and Storage BMPs

BMPs:

BMP Title Material Use _____ :

- ◆ Limit quantity of materials to that required
- ◆ Read and follow manufacturer directions for use of materials
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

BMP Title Material Storage _____ :

- ◆ Store outdoor materials such as dirt and gravel on a concrete pad
- ◆ Store fertilizer and pesticides indoors away from storm drains
- ◆ Store hazardous materials indoors in a flammables cabinet
- ◆ Locate storage areas away from vehicle or equipment paths to reduce potential for accident related leaks or spills
- ◆ Conduct regular inspections for leaks and control dates
- ◆ _____

BMP Title Secondary Containment _____ :

- ◆ Provide concrete secondary containment for gasoline and diesel tanks
- ◆ Test and drain uncontaminated water from secondary containment following rain events
- ◆ Maintain secondary containment and tank area free of trash and debris
- ◆ Conduct regular inspections for leaks
- ◆ _____
- ◆ _____

2.3.5 Proper Waste Handling

Waste handling BMPs relate to properly controlling, collecting, storing, and disposing of wastes that are generated at a facility. All facility personnel should be aware that disposing any waste (including wash waters) into a storm drain inlet or stormwater conveyance (e.g., streets) is considered illegal dumping. Likewise, disposing of waste (including wash waters) onto a paved or unpaved surface such that it may be carried to a storm drain inlet or stormwater conveyance (e.g., streets) is also considered illegal dumping.

Figure 2-3b Waste Handling BMPs

Waste Handling BMPs for this facility are:

- ◆ Sweep or vacuum work areas to collect debris frequently
- ◆ Store waste materials indoors to prevent exposure to stormwater
- ◆ Regular pick up of used oil to prevent leaks or overflow
- ◆ Locate the waste storage area away from vehicle and equipment paths to reduce the potential for accident-related releases
- ◆ Conduct regular inspections for leaks and control dates
- ◆ Locate dumpsters on concrete pads and limit access to the extent possible
- ◆ Arrange for regular waste disposal
- ◆ Collect grass clippings to keep out of drainage swales

2.3.6 Spill Prevention and Response

Spill clean-up can be labor-intensive and costly involving expenses to contain the spill, collecting the spilled substance, proper disposal of spill materials, and report filing to regulatory agencies, not to mention possible monetary fines. Spills and leaks are some of the most significant sources of water pollution and are, in most cases, avoidable.

Spill prevention and control procedures include:

- Placing bollards, berms and containment features around structures or areas where fluids are stored, so releases can be prevented, easily detected, and controlled;
- Using drip pans for maintenance operations involving fluids and under leaking vehicles and equipment waiting repair;
- Placing spill kits in areas where fluids are stored or in areas where activities may result in a spill;
- Providing training for proper use of materials and equipment used during operations and maintenance activities;
- Providing training for proper use of spill response equipment and supplies; and
- Conducting outdoor maintenance activities on paved surfaces to allow for easy detection, control, and cleanup of spills.

Spill prevention, control, and cleanup applies to all materials and wastes—not only hazardous substances. The toxic water quality effects from spills of hazardous substances (e.g., acids, oils, greases, fuels, solvents, pesticides) are commonly understood. However, non-hazardous materials—for example, sand, litter, and soaps, among others—can also greatly impact water quality. To protect water quality a specific list of spill prevention and response BMPs was developed.

Figure 2-3c Spill Prevention and Control Procedures

Spill prevention and control procedures for this facility are:

- ◆ Using drip pans for maintenance operations involving fluids and under leaking vehicles and equipment awaiting repair
- ◆ Providing training for proper use of materials and equipment used during operations and maintenance activities
- ◆ Providing secondary containment for gasoline and diesel tanks
- ◆ Providing training for proper vehicle and equipment fueling to prevent spills
- ◆ Locking gasoline and diesel tank valves when not in use
- ◆ Providing training for proper use of spill response equipment and supplies
- ◆ Performing vehicle and equipment maintenance operations indoors

2.4 OTHER RELEVANT FACILITY PLANS

In addition to this O&M Plan, other facility specific environmental compliance plans that complement the goal of reducing and preventing pollutant discharges are identified in Figure 2-4. Where these plans are located is also identified.

Figure 2-4 Other Facility Specific Environmental Compliance Plan(s)

Other Facility Specific Environmental Compliance Plan(s) for this facility include:

- ◆ N/A
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

2.5 TRAINING FOR FACILITY PERSONNEL

Helen Morrison, Stormwater Inspector is responsible for Stormwater Management training:

The aforementioned position coordinates training related to stormwater management on at least an annual basis to review specific responsibilities for implementing this O&M Plan, what and how to accomplish those responsibilities, including BMP implementation. This training typically occurs in September shortly before the start of the wet season (October 1 through May 30).

Additionally, general awareness training is provided annually to all employees whose activities may impact stormwater discharges. The purpose of this training is to educate workers on activities that can impact stormwater discharges, and to help in the implementation of BMPs.

Attach training attendance sheets and any other training documentation in Appendix C. Include name of instructor, date and time of training, location of training and training participants.

The training records are kept for a period of no less than five years.

3.0 DEFINITION AND CATEGORIES OF NON-STORMWATER DISCHARGES

A non-stormwater discharge is any discharge or flow to a stormwater drainage system that is not composed entirely of stormwater runoff. The MS4 Permits require that the Permittees prohibit the discharge of non-stormwater, including those from public agency activities, into their respective MS4s and to the Waters of the U.S. unless the discharge is authorized by a respective MS4 Permit or regulated under a separate NPDES permit.

3.1 AUTHORIZED NON-STORMWATER DISCHARGES

The 2016 Phase II Permit provides that certain types of non-stormwater discharges are authorized unless they are identified as a significant source of pollutants.

Examples of “conditionally” authorized non-stormwater discharges include:

- Discharges covered by a NPDES permit, Waste Discharge Requirements, or waivers issued by the Regional or State Board. Unless a Permittee is the discharger, the permittees shall not be responsible for any exceedance of Receiving Water Limitations associated with such discharges;
- Discharges from potable water line flushing and other potable water sources;
- Emergency water flows (i.e., flows necessary for the protection of life and property) do not require BMPs and need not be prohibited. However, appropriate BMPs shall be considered where practicable when not interfering with emergency public health and safety issues;
- Discharges from landscape irrigation, lawn/garden watering and other irrigation waters;
- Air conditioning condensate;
- Rising ground waters and natural springs;
- Groundwater infiltration (as defined in 40 CFR 35.2005(20)) and “uncontaminated pumped groundwater”);
- Passive foundation drains;
- Passive footing drains;
- Water from crawl space pumps;
- Non-commercial vehicle washing, (e.g. residential car washing (excluding engine degreasing) and car washing fundraisers by non-profit organization);
- Flows from riparian habitats and wetlands;
- Dechlorinated swimming pool discharges;
- Waters not otherwise containing wastes as defined in Water Code Section 13050(d); and
- Other types of discharges identified and recommended by the Permittees and approved by the Regional Board.

4.0 MUNICIPAL ACTIVITIES AND MATERIALS, POTENTIAL POLLUTANTS AND ASSOCIATED BMPs

4.1 SIGNIFICANT MATERIALS

A number of materials are used or stored on-site. Table 4-1 summarizes these materials and how they are received or stored at the facility. The table gives examples of the types of materials that should be included in the list of significant materials. It is not all-inclusive. Only fill in those that apply and add those appropriate to this facility that have not already been listed.

Table 4-1 List of Significant Materials

Material Name	Typical Quantity	Receiving and Shipping Location	Handling Location	Frequency
EXAMPLE: Acid	12 gal	Maintenance Shop	Maintenance Shop	Twice weekly
Acid				
Adhesives and sealants				
Aggregate				
Animal Wastes				
Asphalt				
Brake fluid	<1 gal	Maintenance Building	Maintenance Building	As needed
Concrete				
Coolant (new)	<1 gal	Maintenance Building	Maintenance Building	As needed
Coolant (used)	<1 gal	Maintenance Building	Maintenance Building	As needed
Detergents				
Diesel fuel	500 gal	Maintenance Area	Maintenance Area	Monthly
Fertilizers		Maintenance Building	Maintenance Building	Once per year
Gasoline	500 gal	Maintenance Area	Maintenance Area	Every 2 weeks
Gravel	1 ton	Maintenance Area	Maintenance Area	As needed
Hydraulic fluid				
Lubricants				
Motor oil (new)	<1 gal	Maintenance Building	Maintenance Building	As needed
Motor oil (used)	50 gal	Maintenance Building	Maintenance Building	As needed
Paint Products	5 gal	Maintenance Building	Maintenance Building	As needed
Pesticides/Herbicides	X?	Maintenance Building	Maintenance Building	Once per year
Sand	1 ton	Maintenance Area	Maintenance Area	As needed
Soil amendments				
Solvents				
Ballfield Material – Clay/Sand Mix	1 ton	Maintenance Area	Maintenance Area	As needed

4.2 DESCRIPTION OF SIGNIFICANT MATERIALS AND ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

Table 4-2 briefly describes how, when, where and how often each of the materials listed above is delivered, used and stored. Using this information, material's potential for being a pollutant source is assessed.

[Table content is extremely faint and illegible]

Drakes Creek Park Operations & Maintenance Plan

Table 4-2 Identification of Significant Materials and Assessment of Potential Pollutant Sources

Activity	Description
Vehicle and Equipment Fueling	Vehicle and equipment fueling is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any spills or leaked fluids located at the fueling area and subsequently drain over the parking lot and into the storm drain. Pollutants located at the fueling area include diesel and gasoline. Gasoline is delivered approximately every two weeks and diesel is delivered approximately monthly. Both are pumped into respective 500 gallon tanks contained in concrete containment outside the vehicle maintenance building.
Vehicle and Equipment Parking and Storage	Vehicle and equipment storage is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any leaked fluids from the parking and storage areas and subsequently drain over the parking lot and into the storm drain. Pollutants could include leaked oil, fuel, or coolant. Vehicles and equipment are parked both under cover and outside when not in use.
Vehicle and Equipment Washing	Vehicle and equipment washing is a potential source of stormwater pollution at the facility. Washwater has the potential to wash any leaked fluids or sediment from the vehicles in the washing area into the storm drain. Pollutants could include leaked oil, fuel, coolant or sediment.
Material Handling and Storage	Material handling and storage is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any leaked fluids from containers spilled during loading or unloading of materials into the storm drain. Pollutants could include oil, coolant, paint, pesticides, or fertilizer.
Landscape, Garden, and General Maintenance and Cleaning	Landscape, garden and general maintenance and cleaning is a potential source of stormwater pollution at the facility. Stormwater has the potential to wash any overspray of fertilizer or pesticides into the grassed ditches and subsequently into Drakes Creek. Stormwater has the potential to wash any spills or leaks of paints, fertilizers, or pesticides to the drainage ditches and storm drain inlets.

4.3 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES AND ASSOCIATED BMPs

Table 4-3 describes potential pollutant sources and BMPs for the various facility types at Drakes Creek Park.

Drakes Creek Park Operations & Maintenance Plan

Table 4-3 Identification of Potential Pollutant Sources and List of Current BMPs

Area/Activity	Pollutant Source	Pollutant	BMPs
<p>Vehicle and Equipment Fueling is performed adjacent to the maintenance building or under cover via portable fuel containers</p>	<ul style="list-style-type: none"> • Spills caused by tank or container overfilling • Spills and leaks during deliveries • Rainfall on fueling area 	Gasoline or diesel	<ul style="list-style-type: none"> • Train employees in proper fueling and cleanup procedures. • Use absorbent materials on spills • Install covered spill kits near fueling area
<p>Vehicle and Equipment Parking and Storage is located in the park maintenance area outside along the fence as well as under cover</p>	<ul style="list-style-type: none"> • Leaks from parked vehicles or stored equipment 	Oil, fuel, coolant	<ul style="list-style-type: none"> • Train employees in proper cleanup of leaks • Regularly inspect vehicles and equipment for leaks • Use drip pans under leaking vehicles and equipment
<p>Vehicle and Equipment Washing is located in the maintenance area on the parking lot and in a vegetated park area</p>	Washing sediment and debris off vehicles	Sediment, vehicle fluids	<ul style="list-style-type: none"> • Direct wash water toward surrounding, existing vegetation
<p>Material Handling and Storage is located in the maintenance area. Loading and unloaded takes place outside, storage for chemicals is under cover, ball field material is outdoors</p>	Container spills or leaks	Oil, coolant, paint, pesticides, fertilizer	<ul style="list-style-type: none"> • Develop procedures for loading or unloading materials • Conduct loading and unloading in dry weather • Pave loading areas with concrete • Train employees in spill containment and cleanup
<p>Landscape, Garden and General Maintenance and Cleaning is performed in the park on the fields as well as in and around other park facilities</p>	<ul style="list-style-type: none"> • Overspray of pesticides or fertilizer • Spills or leaks of fertilizers, pesticides, or paints 	Pesticides, fertilizer, paint	<ul style="list-style-type: none"> • Use proper lawn management and maintenance procedures • Properly recycle trimmings • Recycle residual paints

5.0 ANNUAL FACILITY OR ACTIVITY STORMWATER ASSESSMENT

An Annual Stormwater Assessment helps to assure that significant changes in facilities or activities are identified and can then be reflected in the O&M Plan. The Annual Stormwater Assessment includes:

- Visual inspection of all potential sources of pollutants that may enter the stormwater drainage system via stormwater or non-stormwater discharges;
- A review and assessment of all BMPs to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed; and
- Visual inspection of equipment needed to implement the O&M Plan, such as spill response equipment, drip pans, brooms or vacuum sweepers, or containers for used absorbents.

The Annual Facility or Activity Stormwater Assessment should be documented:

- Identification of personnel performing the evaluation;
- The date(s) of the evaluation;
- Findings of the evaluation;
- Recommended modifications of the O&M Plan;
- Schedule for implementing O&M Plan revisions;

and Any incidents of non-compliance and the corrective actions taken.

Following the evaluation, revisions, if needed, to the O&M Plan should be completed within 90 days. Assessment forms may be found in Appendix B.

Completed Assessment forms should be placed in Appendix D. Table 5-1 can be used to track annual assessments and follow through on recommendations.

Table 5-1 Assessment Log

Assessment Date (mm/dd/yyyy)	Assessor (Name & Position)	Revisions Required? (Y/N)	Follow Through (Date or N/A)
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

APPENDIX A
SUGGESTED BMPs FOR VEHICLE MAINTENANCE/MATERIALS STORAGE
FACILITIES

SUGGESTED BMPs FOR VEHICLE MAINTENANCE/MATERIALS STORAGE FACILITIES

The following best management practices (BMPs) were adapted from USEPA's *Stormwater Multi-Sector General Permit for Industrial Activities* (September 1995), and the County of Los Angeles Department of Public Works model program and include additional guidance on using treatment controls. Although they were developed for industrial facilities, they serve as good general guidance for vehicle maintenance/material storage facilities.

VEHICLE MAINTENANCE FACILITIES

Fueling

- Use spill and overflow protection.
- Minimize run-on of stormwater into the fueling area by grading the area such that stormwater only runs off.
- Reduce exposure of the fuel area to stormwater by covering the area.
- Use dry cleanup methods for fuel area rather than hosing the fuel area down.
- Use proper petroleum spill control.
- Perform preventive maintenance on storage tanks to detect potential leaks before they occur.
- Inspect the fueling area to detect problems before they occur.
- Train employees on proper fueling techniques.

Vehicle and Equipment Maintenance

- Maintain an organized inventory of materials used in the maintenance shop.
- Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly.
- Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).
- Drain oil filters before disposal or recycling.
- Drain and contain all fluids from wrecked vehicles and "parts" cars.
- Store cracked batteries in a nonleaking secondary container.
- Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers.
- Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.
- Plug floor drains that are connected to the storm or sanitary sewer.
- Alternatively, install a sump that is pumped regularly.
- Inspect the maintenance area regularly for proper implementation of control measures.
- Train employees on proper waste control and disposal procedures.

Outdoor Vehicle and Equipment Storage and Parking

- Use drip pans under all vehicles and equipment waiting for maintenance.
- Cover the storage area with a roof.
- Inspect the storage yard for filling drip pans and other problems regularly.
- Train employees on procedures for storage and inspection items.

Vehicle or Equipment Washing Areas

- Avoid washing parts or equipment outside.
- Use phosphate-free biodegradable detergents.
- Designate an area for cleaning activities.
- Contain and recycle washwaters.

- Ensure that washwaters drain well.
- Inspect cleaning area regularly.
- Train employees on proper washing procedures.

Liquid Storage in Above Ground Storage

- Maintain good integrity of all storage containers.
- Install safeguards (such as diking or berming) against accidental releases at the storage area.
- Inspect storage tanks to detect potential leaks and perform preventive maintenance.
- Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks.
- Train employees on proper filling and transfer procedures.

MATERIAL STORAGE AREAS

Outdoor Unloading and Loading

- Confine loading/unloading activities to a designated area.
- Consider performing loading/unloading activities indoors or in a covered area.
- Consider covering loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps).
- Close storm drains during loading/unloading activities in surrounding areas.
- Avoid loading/unloading materials in the rain.
- Inspect the unloading/loading areas to detect problems before they occur.
- Inspect all containers prior to loading/unloading of any raw or spent materials.
- Consider berming, curbing, or diking loading/unloading areas.
- Install dead-end sumps where spilled materials could be directed.
- Place drip pans under hoses.
- Use dry clean-up methods instead of washing the areas down.
- Train employees on proper loading/unloading techniques and spill prevention and response.

Outdoor Material Storage

- Confine storage of materials, parts, and equipment to designated areas.
- Consider secondary containment using curbing, berming, or diking all liquid storage areas.
- Train employees on proper waste control and disposal.
- Train employees in spill prevention and response.
- Consider covering tanks.
- Ensure that all containers are closed (e.g., valves shut, lids sealed, caps closed).
- Wash and rinse containers indoors before storing them outdoors.
- If outside or in covered areas, minimize run on of stormwater by grading the land to divert flow away from containers.
- Perform leak detection and container integrity testing.
- Direct runoff to onsite retention pond.
- Inventory all raw and spent materials.
- Place tubs around vents and stacks to collect particulates.
- Inspect air emission control systems (e.g., baghouses) regularly, and repair or replace when necessary.
- Store wastes in covered, leak proof containers (e.g., dumpsters, drums).
- Consider shipping all wastes to offsite landfills or treatment facilities.
- Ensure hazardous waste disposal practices are performed in accordance with federal, state, and local requirements.

APPENDIX B
ANNUAL FACILITY/ACTIVITY STORMWATER ASSESSMENT FORM
AND CHECKLIST

_____(Facility)

**Stormwater Management Program
Annual Site/Activity Assessment**

1. Name of Building or Operation: _____

2. Operation Representative: _____

Position: _____ Phone No.: _____

	<u>Yes</u>	<u>No</u>	<u>Not Applicable</u>
3. Facility's O&M Plan easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Awareness of O&M Plan by facility personnel? (Random survey of employees of site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Facility's Emergency Response Plan easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Awareness of Emergency Response Plan by facility personnel? (Random survey of employees on site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Evaluation Checklist (page 2 of 2) completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was any stormwater pollution prevention training conducted during the year?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Were non-stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Were stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Evaluation Notes: _____

Corrective Measures Recommended: _____

Evaluation Conducted By: _____ Date: _____

This completed evaluation was reviewed with me on: _____

Date

Operation Representative (signature): _____

Assessment Checklist

Activities – Check each activity present at the site.	Effectiveness Rating *				
	1	2	3	4	5
Vehicle and Equipment Fueling: 1. Fueling area is designed to prevent run on of stormwater and the runoff of spills 2. Employees are trained in proper fueling and cleanup procedures 3. Absorbent materials are used on small spills rather than hosing down 4. Daily inspections. 5. Pump island is inspected regularly for spills and/or leaks	<input type="checkbox"/>				
Vehicle and Equipment Washing/Steam Cleaning 1. A designated wash are is used 2. The wash area is equipped with a clarifier and is connected to a sanitary sewer 3. The designated wash area is properly designed 4. The clarifier is cleaned regularly	<input type="checkbox"/>				
Vehicle and Equipment Maintenance and Repair 1. Maintenance is done in a designated area only 2. Equipment is kept clean, with no build-up of oil and grease. 3. Drip pans and containers are used under areas that may drip 4. Used oil and oil filters, antifreeze, batteries, fluids, etc. are recycled	<input type="checkbox"/>				
Outdoor Loading/Unloading of Materials 1. Delivery vehicles are parked so spills and leaks can be contained 2. The loading/unloading dock is covered to reduce exposure of materials to rain 3. The loading/unloading area is designed to prevent stormwater run on 4. Fork lift operators are properly trained	<input type="checkbox"/>				
Outdoor Container Storage of Materials 1. Materials are covered to protect from rainfall 2. Materials are protected from run on and runoff of stormwater 3. Waste dumpsters are covered 4. Hazardous materials are stored in a properly designed storage area	<input type="checkbox"/>				
Outdoor Process Equipment O & M 1. The area is covered with a permanent roof 2. Berming and drainage routing is used to minimize contact of stormwater 3. The equipment are is swept after each use of machine or at the end of each day	<input type="checkbox"/>				
Outdoor Storage of Raw Materials/Products 1. The storage area is covered with a roof 2. Materials are covered with a temporary plastic covering 3. Berms and curbing are used to prevent materials from entering the storm drain system 4. Parking lots and/or other surface areas are swept regularly near the material storage area	<input type="checkbox"/>				
Waste Handling and Disposal 1. Usage and disposal inventory is used to limit waste generation 2. Materials are recycled whenever possible 3. Wastes are segregated and separated 4. Storage area is covered, enclosed and bermed	<input type="checkbox"/>				
Contaminated or Erodible Surface Areas 1. Erosion can be controlled by preservation of natural vegetation 2. Surface area is regularly inspected to determine is revegetation is needed 3. Geosynthetics are used as an alternative for the surface area 4. Sandbags or berms are needed to prevent stormwater pollution	<input type="checkbox"/>				
Building and Grounds Maintenance 1. Pesticides and fertilizers are used and stored properly 2. Paved areas are swept instead of washed down 3. Wash water, sweepings and sediments are disposed of properly 4. Planting of natural vegetation reduces water, fertilizer and/or pesticide needs	<input type="checkbox"/>				
Building Repair, Remodeling and Construction 1. Materials used in repair and remodeling (paints, etc.) are stored properly 2. Soil erosion control techniques are used 3. Good housekeeping practices are used	<input type="checkbox"/>				

* 1-No BMPs used and stormwater pollution likely. 2- Some BMPs used but not effective. 3- Some BMPs used and moderately effective.
 4- Source control BMPs used and very effective/structural BMPs needed. 5- All necessary BMPs used and very effective.

APPENDIX C
TRAINING DOCUMENTATION

APPENDIX D
COMPLETED ASSESSMENT FORMS

APPENDIX E
CITY OF HENDERSONVILLE PARKS

This O&M Plan applies to the following City of Hendersonville Park Facilities:

Sanders Ferry Park

513 Sanders Ferry Road

Hendersonville, TN 37075

BMPs:

- Storm sewer pipe under the roadway and walking trails
- Grassed drainage ditches and swales

Veteran's Park

224 Scotch Street

Hendersonville, TN 37075

BMPs:

- Storm sewer system
- Grassed drainage ditches and swales

Memorial Park

151 East Main Street

Hendersonville, TN 37075

BMPs:

- Storm sewer pipe under the roadway and walking trails
- Grassed drainage ditches and swales

Volunteer Park at Arrowhead

1334 Drakes Creek Road

Hendersonville, TN 37075

BMPs:

- Storm sewer system
- Grassed drainage ditches and swales

June 20, 2019

Mr. Duane Allen
Design Engineer
City of Hendersonville
101 Maple North Drive
Hendersonville, Tennessee 37075

Dear Mr. Allen:

Subject: City of Hendersonville Gap Analysis Summary
Stormwater Management Program Support
CEC Project 190-706

1.0 INTRODUCTION & BACKGROUND

The Tennessee Department of Environment and Conservation (TDEC) requires coverage for stormwater discharges from certain small municipal separate storm sewer systems (MS4s) under the Phase II NPDES permit - TNS000000 (Permit). CEC understands that the City of Hendersonville (City) was originally covered under the 2003 permit. The City obtained coverage under the 2010 Permit on June 15, 2011 and coverage under the 2016 Permit was obtained on May 1, 2017. Civil & Environmental Consultants, Inc. (CEC) performed a gap analysis of the City of Hendersonville's (City) stormwater management program to assess compliance with the Permit requirements and evaluate overall program effectiveness. The gap analysis consisted of an in-person meeting on March 20, 2019, review of internal City documents, review of the TDEC permit web viewer for City permitting documents, and review of the City's website. Notes summarizing the March 20, 2019 meeting were sent to the City on April 2, 2019. However, the City requested a more detailed letter of our findings. There has also been subsequent correspondence between CEC and the City. This letter presents the findings of this gap analysis in greater detail.

2.0 GAP ANALYSIS FINDINGS

CEC used our MS4 Permit compliance experience including an audit checklist obtained from TDEC during recent audits for other MS4s to assess the City's stormwater management program. In some cases, the original requirement was located in the 2010 Permit (or the 2003 Permit); however, our recommendations refer to the 2016 Permit because it is the current permit in force and may have modified language compared to the 2010 permit. Permanent stormwater

requirements in the 2016 Permit were appealed, and TDEC has issued draft rule making language for public comment. Therefore, CEC did not include findings regarding the City's permanent stormwater management requirements. Following is a list of our findings from the gap analysis:

- 1) Inventory and tracking of Best Management Practices (now called Stormwater Control Measures or SCMs)
 - Due Date: **December 12, 2011** (within 180 days of coverage)
 - Permit location: Section 4.1.1 and 4.2.5.6 of the 2010 Permit (p.11 and p.19)
 - Actions taken: (None)
 - Recommendations: Begin mapping known SCM locations and develop a GIS database to comply with section 4.2.5.6 of the 2016 Permit

- 2) Develop a Public Information and Education (PIE) plan
 - Due Date: **June 15, 2012** (within 1 year of coverage)
 - Permit location: Section 4.2.1 of the 2010 Permit (p.11)
 - Actions taken: The City has produced a draft PIE plan and sent it to a consultant
 - Recommendations: Collaborate with the consultant on finalizing the PIE plan to comply with section 4.2.1 of the 2016 Permit

- 3) Develop and implement an Illicit Discharge Detection and Elimination (IDDE) Standard Operating Procedure (SOP) & mechanism for the public to report suspected illicit discharges
 - Due Date: **December 15, 2012** (within 18 months of coverage)
 - Permit location: Section 4.2.3 of the 2010 Permit (p. 13)
 - Actions taken: The City has produced a draft IDDE SOP and sent it to a consultant
 - Recommendations: Collaborate with the consultant on finalizing the IDDE SOP and develop webpage for public reporting of suspected illicit discharges to comply with section 4.2.3 of the 2016 Permit

- 4) Develop and implement an Enforcement Response Plan (ERP)
 - Due Date: **December 15, 2012** (within 18 months of coverage)
 - Permit location: Section 4.2.3 of the 2010 Permit (p. 13)
 - Actions taken: The City has produced a draft ERP and sent it to a consultant
 - Recommendations: Collaborate with the consultant on finalizing the ERP to comply with section 4.2.3 of the 2016 Permit

- 5) Define "Priority Construction Activity" in the Ordinance
 - Due Date: **June 15, 2013** (within 24 months of coverage)
 - Permit location: Section 4.2.4.j of the 2010 Permit (p. 15)
 - Actions taken: The City has approved a Task Order to perform the work
 - Recommendations: Collaborate with the consultant on Ordinance revisions to comply with section 4.2.4j of the 2016 Permit

- 6) Develop and implement a Construction Inspection Standard Operating Procedure (SOP)
 - Due Date: **June 15, 2013** (within 24 months of coverage)
 - Permit location: Section 4.2.4.h of the 2010 Permit (p. 15)
 - Actions taken: The City has produced a draft Construction Inspection SOP based on what is currently being done and sent it to a consultant
 - Recommendations: Collaborate with the consultant on finalizing the Construction Inspection SOP to comply with section 4.2.4h of the 2016 Permit

- 7) Include requirements for construction site operators to control waste materials in Ordinance
 - Due Date: **June 15, 2013** (within 24 months of coverage)
 - Permit location: Section 4.2.4.e of the 2010 Permit (p. 15)
 - Actions taken: The City has approved a Task Order to perform the work
 - Recommendations: Collaborate with the consultant on Ordinance revisions to comply with section 4.2.4e of the 2016 Permit

- 8) Add buffer requirements to Ordinance
 - Due Date: **August 31, 2015** (within 5 years of Permit issuance)
 - Permit location: Section 4.2.5.1 of 2010 Permit (p.15)
 - Actions taken: The City has approved a Task Order to perform the work
 - Recommendations: Collaborate with the consultant on Ordinance revisions to comply with section 4.2.5.2.4 of the 2016 Permit

- 9) Develop Operation and Maintenance (O&M) plans for municipal operations & train employees on O&M plans
 - Due Date: **August 31, 2015** (within 5 years of Permit issuance)
 - Permit location: Section 4.2.6 of 2010 Permit (p.20)
 - Actions taken: The City has drafted a couple of O&M plans and sent them to a consultant for review
 - Recommendations: Collaborate with the consultant on finalizing the O&M plans and continuing developing other required O&M plans to comply with section 4.2.6 of the 2016 Permit

- 10) Storm sewer system map
 - Due Date: **August 31, 2015** (within 5 years of Permit issuance)
 - Permit location: Section 4.2.3 of the 2010 Permit (p. 13)
 - Actions taken: The City has requested and received a Task Order to perform the work
 - Recommendations: Approve the Task Order and begin the work to comply with section 4.2.3 of the 2016 Permit

- 11) Develop and/or document existing guidelines for interagency coordination of spill response
 - Due Date: **August 31, 2015** (within 5 years of Permit issuance)
 - Permit location: Section 4.2.3 of the 2010 Permit (p. 13)
 - Actions taken: (None)
 - Recommendations: Develop draft guidelines and coordinate with other agencies to finalize the coordination of spill response to comply with section 4.2.3 of the 2016 Permit

- 12) Ordinance Update for construction site runoff pollutant control program consistent with requirements of reissued NPDES general permit for construction stormwater runoff
 - Due Date: **March 30, 2018** (within 18 months of reissuance of the CGP)
 - Permit location: Section 4.1.2 of the 2016 Permit (p. 11)
 - Actions taken: The City has approved a Task Order to perform the work
 - Recommendations: Collaborate with the consultant on Ordinance revisions to comply with section 4.1.2 of the 2016 Permit

- 13) Set up a Stormwater Appeals Committee
 - Due Date: (This is a permit recommendation, not a requirement)
 - Permit location: Section 4.2.5.1 of the 2016 Permit (p. 16)
 - Actions taken: The City has enlisted the help of a consultant to set up this committee
 - Recommendations: Work with the consultant to finalize the creation of the committee and develop a training schedule using the Municipal Technical Advisory Service (MTAS) as the trainer

- 14) Employee training on IDDE and O&M plans
 - Due Date: New employees must be trained within six months of their employment or movement into an applicable job category
 - Permit location: Section 4.2.6 of the 2016 Permit (p. 21)
 - Actions taken: The City is actively looking for training courses to attend
 - Recommendations: Attend relevant training courses and set up training date for relevant employees once O&M plans are finalized to comply with section 4.2.6 of the 2016 Permit

- 15) Create an “Annual Review Meeting Agenda” to evaluate program effectiveness
 - Due Date: Before turning in the annual report (which is due September 30 of every year)
 - Permit locations: Section 3.1.2 (p. 6), Section 4.2.1 (p. 11), Section 4.2.4.f (p. 15), Section 4.4.1 (p. 22), and Section 5.1.a (p. 27)
 - Actions taken: The City has a pending Task Order to perform the work
 - Recommendations: Approve the Task Order and collaborate with the consultant on creating an Annual Review Meeting Agenda to comply with section 4.4.1 of the 2016 Permit

Mr. Allen – City of Hendersonville
CEC Project 190-706
Page 5
June 20, 2019

CEC appreciates the opportunity to provide engineering services to the City and looks forward to continuing our working relationship to help meet the recommendations in this letter. Please contact us if you have any questions at 615-333-7797 or jbryan@cecinc.com or scasey@cecinc.com.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Justin Bryan, P.E., CPESC
Project Manager



Steven E. Casey, P.E., CPESC
Senior Principal