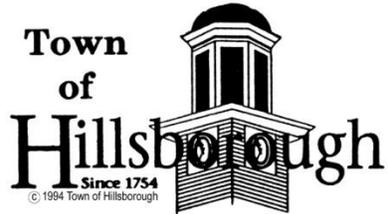


Town of Hillsborough



NPDES Phase II Stormwater Management Program



Stormwater Wetland at Gold Park

ANNUAL REPORT

December 2015

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INTRODUCTION

Why Care About Stormwater?

Adding impervious surface decreases the amount of stormwater that infiltrates into the ground. This increases the amount and velocity of stormwater runoff. This can cause accelerated erosion and downstream flooding. In addition, as stormwater flows across impervious surfaces, it picks up various pollutants. These include excess nutrients, oil and grease, bacteria and sediment. Polluted stormwater flows down storm drains and ditches where it is discharged, untreated, into local streams, rivers, and lakes. Stormwater runoff pollution causes adverse impacts to aquatic ecosystems, poses human health risks, and can greatly increase the cost of treating drinking water.

Program Background

In 1972, the National Pollutant Discharge Elimination System (NPDES) program was established under the authority of the Federal Clean Water Act. Phase I of the NPDES Stormwater program was established in 1990. It required NPDES permit coverage for municipalities with populations of 100,000 or more.

Phase II of the NPDES Stormwater program was signed into law in December 1999. The Phase II program extended permit coverage to smaller (< 100,000 pop.) communities and public entities that own or operate a municipal separate storm sewer system (MS4). It required these smaller communities to develop a stormwater program and obtain an NPDES permit for stormwater discharges.

In North Carolina, the Department of Environment and Natural Resources (NCDENR) administers the NPDES Stormwater program. NCDENR issued the Town of Hillsborough's (Town) initial Phase II permit, on October 1, 2005. The permit required the Town to develop, implement, and enforce a stormwater program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable. The program was implemented in phases over five years of the initial permit. Pursuant to the permit the stormwater program included the following six minimum measures or best management practices (BMPs):

1. Public education and outreach on stormwater impacts;
2. Public involvement/participation;
3. Illicit discharge detection and elimination;
4. Construction site stormwater runoff control (Erosion Control);
5. Post-construction stormwater management for new development and redevelopment;
6. Pollution prevention/good housekeeping for municipal operations.

The Town's current permit, Number NCS000466, was issued on October 1, 2010. This annual report reflects reporting requirements pursuant to the permit but is in addition to the primary online report required by NCDENR. Numbers reported are for the "permit year" which runs from October 1, 2014 through September 30, 2015.

1. Storm Sewer System Information

1.1 Population Served

Estimated population served..... 6,326¹

1.2 Growth Rate

Estimated growth rate..... 3.9%²

1.3 Jurisdictional Area

Town Limits 5.3 sq. mi

ETJ 3.7 sq. mi.

1.4 MS4 Conveyance System

Due to the age of the town, MS4 consists of a variety of stormwater conveyances and components. These range from typical curb and gutter systems conveyed by concrete pipes to simple sheet flow. The predominate conveyance components include grass lined swales and vegetated drainage ditches with various pipes and culverts. There are also various detention systems within the Town's jurisdiction, however these are on private property.

MS4 system components are periodically inspected to ensure proper function. The North Carolina Department of Transportation (NCDOT) maintains systems within state road rights-of-way. Systems located on private property, including detention facilities and other engineered stormwater controls, are maintained by the owner.

1.5 Land Use Composition

Estimated Land Use³

Residential..... 29%

Commercial 14%

Industrial..... 4%

Open Space..... 53%

Total 100%

¹ July 2014 Data from North Carolina Office of Budget and Management, State Demographics Data, <http://www.osbm.state.nc.us/>.

² Percentage increase from 2010 to 2014 (North Carolina Office of Budget and Management, State Demographics Data, <http://www.osbm.state.nc.us/>.)

³ Land use percentages were estimated from the Town of Hillsborough Land Use GIS database. Area of parcels for each designated land use type were summed and calculated for relative percentage of the planning jurisdictional area.

1.6 TMDL Identification

Currently, no streams flowing into or out of the Town of Hillsborough’s jurisdiction have an associated Total Maximum Daily Load.

2. Receiving Streams

The Town of Hillsborough lies entirely within the Falls Lake Watershed, which is part of the Neuse River Basin. Specifically, the Town drains to the Eno River. Specific receiving waters are listed below.

Receiving Stream	Description	Classification	Index No.
Eno River (Corporation Lake, Lake Ben Johnston)	From a point 0.4 mile upstream of Dry Run to dam at Lake Ben Johnston (Orange County water supply intake & Town of Hillsborough water supply intake)	WS-II; HQW, CA, NSW	27-2-(3.5)
Eno River	From dam at Lake Ben Johnston to Orange County SR 1561	C; NSW, N	27-2-(7)
Seven Mile Creek	From a point 0.4 mile upstream of I-85 to Lake Ben Johnston, Eno River	WS-II; HQW, CA, NSW	27-2-6-(1.5)
Rocky Run	From a point 0.5 mile upstream of I-85 to Seven Mile Creek	WS-II; HQW, NSW	27-2-6-2-(2)
Cates Creek	From source to Eno River	C; NSW	27-2-8
Strouds Creek	From source to Eno River	C; NSW	27-2-9
Stony Creek	From source to a point 0.4 mile upstream of Orange County SR 1710	C; NSW	27-2-13-(1)

3. Existing Water Quality Programs

3.1 Local Programs

The following programs and ordinances are being implemented within the Town of Hillsborough’s jurisdiction.

Unified Development Ordinance (UDO) – regulates overall development and land use. Specific water quality aspects include local stream buffer rules and post construction stormwater requirements, including nutrient limits.

Flood Damage Prevention – through its UDO the Town protects water quality by preventing new development within flood hazard zones.

Local Nutrient Sensitive Waters (NSW) Strategy - through its UDO the Town adopted stormwater requirements for new development to meet the Falls Lake Nutrient Management Strategy (Falls Lake rules).

Delegated Erosion And Sediment Control Program - as noted in Section 6, the Town relies on Orange County to conduct an erosion control program. Orange County has local delegated authority from the state.

3.2 State Programs

State programs, including the Neuse, Falls Lake, and Water Supply Watershed rules are implemented at a local level. The Town of Hillsborough does rely on NCDOT to maintain stormwater facilities and programs within state-owned road rights-of-way.

4. Permitting Information

The Town's Stormwater Program is under direction of the Town's Stormwater Program Manager. The Stormwater Program Manager works closely with Utilities, Public Works and Planning departments, but is supervised by the Town's Planning Director.

4.1 Responsible Party Contact List

Overall implementation and oversight of the Town's Stormwater Program is coordinated by:

Terry Hackett, Stormwater Program Manager
Town of Hillsborough
P.O. Box 429
101 E. Orange Street
Hillsborough, NC 27278
Telephone: 919-732-1270
Email: terry.hackett@hillsboroughnc.org

4.2 Signing Official

The Town of Hillsborough operates under a council-manager form of government. The town manager is responsible for management and oversight of the Town's daily operations. Contact information is listed below:

Eric Peterson, Town Manager
Town of Hillsborough
101 E. Orange Street
P.O. Box 429
Hillsborough, NC 27278
Telephone: 919-732-1270
Email: eric.peterson@hillsboroughnc.org

5. Co-Permit Status Information

The Town of Hillsborough holds its own NPDES Phase II permit and does not co-permit with another entity.

6. Reliance on Another Entity

The Town of Hillsborough utilizes Orange County to implement the Construction Site Stormwater Runoff Control (i.e. erosion control) portion of its stormwater program.

6.1 Contact Information

Erosion Control Program: Howard Fleming Jr., P.E., Erosion Control Supervisor
 Orange County Planning and Inspections Department
 131 W Margaret Lane, Suite 201
 Hillsborough, NC 27278
 919-245-2586
 hfleming@orangecountync.gov

6.2 Legal Agreement

The Town maintains an inter-local agreement with Orange County to provide erosion control services. The current agreement was approved in October 2012.

7. Stormwater Management Program Plan

The following sections briefly describe the Town's stormwater management program for each of the six BMPs. Detailed information regarding each program area can be found in the Town's comprehensive stormwater management plan, available on the Town's website.

7.1 Public Education and Outreach

The Town's stormwater public education and outreach program includes dissemination of educational materials, various school programs, rain garden demonstration site at Stillhouse Creek, presentations to various civic groups, CW Stanford Eco-classroom Project, Outdoor Science Club, and membership in the Clean Water Education Partnership. Accomplishments are listed in the following sections.

7.1.1 School Program Statistics

School Stormwater Education Programs-2015		
Program	Students	Giveaways/ Certificates
AL Stanback Middle School – Earthwalk	209	24
Gravelly Hill Middle School – Earthwalk	181	22
Gravelly Hill Science Club	28	28
AL Stanback – Watershed Class	18	--
Cedar Ridge High School – Drafting Class	21	--
4H/Orange Soil & Water Event	25	25
<i>Total</i>	482	99

7.1.2 Outreach, Special Events and Other Program Statistics

Outreach, Special Events and Other Programs-2015		
Program	Participants	Handouts/ Giveaways
Duke Fly Fishing Class	28	28
State of the Town Address	18	12
Earth Evening Event	23	15
Triangle Fly Fishers Presentation	63	63
<i>Total</i>	132	118

7.1.3 CWEP Media Statistics

The Town of Hillsborough participates in the Clean Water Education Partnership (CWEP). CWEP assists member governments with their stormwater outreach and education program by leveraging member dues to conduct various media campaigns. Summary statistics for Hillsborough are provided below. For more information, the CWEP annual report and other outreach materials can be accessed from their website, <http://www.nccwep.org/>.

CWEP 2015 Statistics	
Town's 2015 Cost Share	\$2,262.00
Market	Triangle Market
Television Outreach	360 spots aired, 10,846 impressions ⁴
Movie Theater Outreach	686 spots aired, 9,753 impressions ⁵
Radio Outreach	No radio outreach conducted this year
Website Performance	2,016 unique visitors/month average

7.2 Public Involvement and Participation

The Town's stormwater public involvement and participation program includes maintaining an informational website with contact information, publishing a stormwater program newsletter, stormwater related press releases, participation in local events and festivals, participation in NC Big Sweep, volunteer stream monitoring, periodic tree plantings, rain garden program, and input from the Town

⁴ Impressions are a metric used in media; it is the total number of times radio/television spots were heard/seen (a given listener/viewer may hear/see the message multiple times.)

⁵ There are no movie theaters in Hillsborough, so these statistics are for the two closest movie theatres to Hillsborough. Spots were aired through the Triangle Market.

Board and public meetings. Summary statistics are provided in the following sections.

7.2.1 *Newsletters, Articles and Press Release Statistics*

Newsletters, Articles and Press Release Statistics – 2015	
Stormwater Almanac (newsletter) Issues Published	3
Stormwater Related Press Releases	4
Stormwater Related Articles Written/Published	1

7.2.2 *NC Big Sweep Statistics*

In 2015, the organization NC Big Sweep shut down operations. Due to staff time constraints no formal trash clean-up events were sponsored by the Town of Hillsborough, however supplies were provided for 3 small, trash sweeps conducted by local civic groups.

7.2.3 *Volunteer Monitoring*

Volunteer Monitoring – 2015	
Number of Groups	1
Number of Monitoring Locations	2
Total Number of Volunteers	22
Number of Actions Completed as a result	1

7.2.4 *Public Assistance*

Public Assistance – 2015	
Number of Calls, Complaints, Issues	21
Number Resolved	19

7.2.5 *Tree/Wetland Planting*

Tree/Wetland Plantings - 2015		
Name/Location	Trees/Plants	Acres
Gold Park Riparian Buffer	57	0.2
Kings Highway Park Riparian Buffer	6	0.1
Cameron Park Rain Garden	97	0.1
<i>Total</i>	160	0.4

7.2.6 *Public Meeting Statistics*

In 2015 stormwater staff made two presentations to the Town Board and was involved in one public informational meeting with multiple agencies. Additionally stormwater staff made two presentations to the Town’s Tree Board.

Stormwater Related Public Meetings 2015	
Number of Meetings	5
Number of Attendees	129

7.3 **Illicit Discharge Detection and Elimination**

The Town’s stormwater illicit discharge detection and elimination program is outlined in its *Illicit Discharge Detection and Elimination Plan* and is enforced through the Town code. This plan details measures that Town staff follows to find and eliminate illicit discharges and connections to the MS4. Other components of this program include employee cross-training, updating mapping, and evaluating funding sources to expand the program. There are approximately 200 stormwater outfalls located within the Town’s jurisdiction. There are also 67 known structural stormwater BMPs which have been mapped. Approximately 99% of the Town’s MS4 has been mapped.

7.3.1 *Illicit Discharge Statistics*

Due to staff resource constraints no screening investigations or dry weather inspections were conducted; except for informal dry weather inspections conducted as part of stormwater staff routine duties. The resource constraints, including the need for additional staff are currently being analyzed for the fiscal year 2016-2017 budget. Stormwater staff did respond and resolve six individual illicit discharge complaints.

Illicit Discharge Summary – 2015		
<i>Illicit Discharge Screening & Inspection</i>	Screening Investigations conducted	0
	Dry weather inspections conducted	0
	Illicit discharges found	0
	Illicit connections found	0
<i>Individual Complaints & Investigations</i>	Number of Complaints/Investigations	6
	Investigations resolved	6
	NOVs Issued	1

7.3.2 Sanitary Sewer Overflow Statistics

While a sanitary sewer overflow (SSO) is ultimately the responsibility of the Town’s Utility department, overflows can reach the stormwater system and/or receiving waters, and therefore are considered an illegal discharge and thus reported here. For 2015 the Town of Hillsborough Utility Department reported two SSOs for the permit year. One SSO was a result of debris found in the sewer line. The debris was removed and the line repaired. The second was due to grease and tree roots. That line was cleared and repaired. While the total amount reaching a surface water exceeded 1,000 gallons, this is still relatively minor. Details are summarized below.

SSO Summary – 2015	
Number of SSO’s	2
Reported to state	2
Causes identified	2
Sites repaired	2
Total Volume of SSO’s (gallons)	1,650
Volume reaching surface waters (gallons)	1,650

7.3.3 Cross-Training

Due to stormwater staff time constraints, no illicit discharge recognition training was provided to Town employees in 2015. However, this training was provided to approximately 32 maintenance and custodial staff with Orange County Schools.

7.4 Construction-Site Stormwater Runoff Control

Orange County implements and enforces construction site stormwater runoff control for the Town of Hillsborough through its erosion control program. Orange County has local delegated authority from the state to implement an erosion control program. Legal agreements are in place allowing Orange County to enforce its sedimentation and erosion control ordinance within the Town’s jurisdiction.

7.4.1 Erosion Control Projects Reviewed/Permitted

A total of six projects were reviewed and permitted by Orange County Erosion Control in the past year, totaling about 69 acres in disturbance. Two projects, Corbinton Commons and Leland Little Auction House Expansion were actually renewals. Of the six projects approved only Cates Creek Apartments, Skimmerland and Corbinton Commons are under construction. The Forest Ridge projects are expected to start construction soon. A list of projects approved in the last year are provided in the following table.

ECP Review Summary – 2015		
Project Name	Tract Size Area Disturbed	
	(acres)	(acres)
Cates Creek Apartments	21.3	18.0
Skimmerland	3.66	3.51
Leland Little Auction House Expansion	4.48	1.23
Corbinton Commons, West Side	26.69	14.68
Forest Ridge Offsite Utilities	0.85	0.85
Forest Ridge – Phases 2B, 3B, 4 & 5	62.56	30.3
<i>Totals</i>	119.54	68.57

7.4.2 Erosion Control Inspection

Active construction projects are inspected regularly by Orange County Erosion Control staff. Inspection reports, notice of violations (NOVs), and stop work orders are provided to Town stormwater staff. In addition the Town is required to conduct periodic inspections of active construction sites, including Town construction projects, to help ensure compliance. A summary of inspections is provided below.

Inspection Summary – 2015		
Active Projects	Privately Owned	8
	Town Owned Projects	1
	<i>Total</i>	9

Inspections Conducted	OCEC Staff	93
	Town Staff	32
	<i>Total</i>	125

Enforcement Actions	NOVs Issued	1
	Stop Work Orders	0
	<i>Total</i>	1

7.5 Post-Construction Stormwater Management

The Town’s post-construction stormwater program includes two primary components: new development review and stormwater control measure (SCM)

inspection⁶. Proposed development projects are reviewed to determine if stormwater standards listed in the UDO have been met. Development projects are inspected both during construction and periodically after construction to ensure continued operation of structural stormwater SCMs. More details regarding approved development projects can be obtained through the Town’s website, <http://www.ci.hillsborough.nc.us/approved-projects>.

The following two tables summarize projects reviewed and approved in the past year. Of the five projects, Cates Creek Apartments and Skimmerland are under construction. The UNC Hospital Parking Lot and Top Dog Training projects were recently completed construction, while the Leland Little Auction House Expansion project is pending starting of construction.

Development Summary of Approved Projects - 2015				
Development Name	Type	Site Acreage	Impervious Acreage	Number of BMPs
Cates Creek Apartments	Residential, Multi-family	21.30	9.28	2
Skimmerland	Industrial	3.66	1.01	1
UNC Hospital Parking Lot	Institutional	37.28	24.90	2
Top Dog Training	Commercial	5.35	0.43	1
Leland Little Auction House Expansion	Commercial	4.48	1.23	1
	<i>Total</i>	<i>72.07</i>	<i>36.85</i>	<i>7</i>

Stormwater SCMs Approved for Development Projects – 2015	
Stormwater BMP Type	Quantity
Bioretention	1
Dry Detention Pond	1
Level Spreader/Filter Strip	1
Stormwater Wetland	3
Wet Detention Pond	1

7.5.1 Structural Stormwater SCM Inspections

The Town is required to maintain an SCM inspection program pursuant to both the NPDES Phase II regulations and the Falls Lake rules. The Town requires the owner of each SCM to inspect at least annually and submit a

⁶ Formerly known as stormwater “best management practices” or BMPs, engineered stormwater control measures will now be referred to as SCMs. These include wet detention ponds, dry retention basins, bioretention basins, stormwater wetlands, level spreaders, grass swales, etc. and are designed to control both the quantity and quality of stormwater runoff from developed areas. The change in nomenclature is to better describe structural stormwater controls versus other management practices.

report to the stormwater program manager. Additionally, the Town is required to inspect stormwater SCMs approved through the UDO at least once every five years.

There are also SCMs within the Town’s planning jurisdiction that were approved prior to the Town’s NPDES stormwater permit issued in 2005. In March of 2013, stormwater staff embarked on a program to bring all SCMs within the Town’s planning jurisdiction into compliance. This process continues and structural stormwater SCMs are inspected as time and resources allow. The intent is to exceed the inspection interval required by the NPDES and Falls Lake regulations. The goal is to inspect at least a third of SCMs annually. The following table summarizes the effort this year. Six SCMs are noted to be in violation. NOVs will be issued in January 2015 in order to bring those SCMs into compliance as well.

SCM Inspection Summary – 2015	
Number of Mapped BMPs	73
Inspections Conducted ⁷	37
Maintenance Issues Identified	23
Maintenance Issues Resolved as a Result	17
Violations Noted	6
NOVs Issued	0

Perhaps a more telling statistic regarding SCM compliance are the number of annual maintenance inspections received in 2015. Stormwater staff suggested changes to the Town’s UDO which were approved and put into effect in June 2015. The UDO changes now require all SCM owners to submit their annual inspection report by September first of each year. Stormwater staff sent certified letters to the SCM owners notifying them of the change and followed up through email and telephone in an attempt to increase compliance. The tactic proved successful. Not only did compliance with the annual inspection report increase, but required maintenance increased as well. Below is a table summarizing SCM compliance with the annual inspection report over the last three years.

Year	No. of SCMs	Compliant
2013	63	13%
2014	66	47%
2015	72	71%

⁷ This includes both informal and formal inspections conducted as a part of the Town’s effort to bring all stormwater BMPs into compliance and it includes multiple inspections of the same BMPs.

7.6 Pollution Prevention/Good Housekeeping for Municipal Operations

The Town’s pollution prevention/good housekeeping program includes five primary components: evaluate Town operations, corrective action, roadway/drainage maintenance, employee training, and public awareness.

The Town also maintains public road right-of-way (ROW) in portions of their jurisdiction that are not owned by NCDOT and sewer/water line ROW. Public Works and Utility Department employees inspect these ROW areas regularly, as part of their routine duties. Town staff corrects erosion and/or stormwater runoff issues in the ROW and when necessary these issues are evaluated by stormwater staff to ensure compliance with good housekeeping procedures.

Stormwater staff conduct annual “good housekeeping” inspections of each town-owned facility. Facilities are given one of three ratings: compliant, compliant with conditions or non-compliant. Facilities rated compliant with conditions typically have just one or two minor issues that need corrected. Non-compliant facilities either have a major issue or numerous minor issues that need corrected. Once corrective actions are completed, follow-up inspections are conducted to ensure issues were rectified. Below is the status of the 2015 inspections.

Good Housekeeping Inspections – 2015	
Facility	Status
Cemetery	<i>Compliant with Conditions</i>
Fairview Community Policing Center	<i>Compliant</i>
Fleet Maintenance	<i>Compliant with Conditions</i>
Gold Park	<i>Compliant</i>
Kings Highway Park	<i>Compliant</i>
Museum	<i>Compliant with Conditions</i>
Murry Street Park	<i>Compliant with Conditions</i>
Old Landfill	<i>Compliant with Conditions</i>
Police Department	<i>Compliant</i>
Public Parking	<i>Compliant with Conditions</i>
Public Works	<i>Compliant with Conditions</i>
Riverwalk	<i>Compliant</i>
Town Hall	<i>Compliant</i>
Town Hall Annex	<i>Compliant with Conditions</i>
Turnip Patch Park	<i>Compliant with Conditions</i>
Water Distribution	<i>Compliant with Conditions</i>
Water Treatment Plant	<i>Compliant</i>
Wastewater Treatment Plant	<i>Compliant</i>

As noted in the table ten facilities were rated *Compliant with Conditions*. Items identified in these inspections are currently being evaluated and are expected to be addressed in early 2016. Follow up inspections of these facilities will be conducted in the spring and summer of 2016.

7.6.1 *MS4 Maintenance*

The Town of Hillsborough is responsible for maintaining the MS4 within Town street rights-of-way and Town owned properties. This includes street/parking lot sweeping which helps keep pollutants out of the MS4. Additionally, during the fall/winter the town removes leaves from streets, including those collected by citizens.

MS4 Maintenance/Cleaning – 2015	
Number of Regular Roads/Parking Lot Cleanings	389 ⁸
Percentage of Storm Drains/Catch Basins Cleaned	10%
Amount of Trash/Debris/Sediment Removed (pounds)	800

7.6.2 *Employee Training*

Due to stormwater staff time constraints, no good housekeeping and stormwater pollution prevention training was provided to Town employees in 2015. However, this training was provided to approximately 32 maintenance and custodial staff with Orange County Schools.

⁸ This number represents the number of roads cleaned monthly plus five parking lots that totaled 389 cleanings.
