



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

COMPREHENSIVE STORMWATER MANAGEMENT PERMIT

HIGH DENSITY DEVELOPMENT

SECTION 1 - APPROVAL

Having reviewed the application and all supporting materials, the City of Wilmington has determined that the application is complete and the proposed development meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

PERMIT HOLDER: City of Wilmington

PROJECT: City of Wilmington Fire Station #5

ADDRESS: 680 Shipyard Boulevard

PERMIT #: 2017018 DATE: April 4, 2017

Therefore, the above referenced site is hereby approved and subject to all conditions set forth in Section 2 of this approval and all applicable provisions of the City of Wilmington Comprehensive Stormwater Management Ordinance.

This permit shall be effective from the date of issuance until April 4, 2027 and shall be subject to the following specified conditions and limitations:

Section 2 - CONDITIONS

- This approval is valid only for the stormwater management system as proposed on the approved stormwater management plans dated April 4, 2017.
- 2. The project will be limited to the amount and type of built-upon area indicated in Section IV of the Stormwater Management Application Form submitted as part of the approved stormwater permit application package, and per the approved plans.
- 3. This permit shall become void unless the facilities are constructed in accordance with the approved stormwater management plans, specifications and supporting documentation, including information provided in the application and supplements.
- 4. The runoff from all built-upon area within any permitted drainage area must be directed into the permitted stormwater control system for that drainage area.





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5. The permittee shall submit a revised stormwater management application packet to the City of Wilmington and shall have received approval prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:

a. Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.

b. Redesign or addition to the approved amount of built-upon area or to the drainage area.

c. Further subdivision, acquisition, lease or sale of any part of the project area.

d. Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.

e. Construction of any permitted future areas shown on the approved plans.

- 6. A copy of the approved plans and specifications shall be maintained on file by the Permittee.
- 7. During construction, erosion shall be kept to a minimum and any eroded areas of the system will be repaired immediately.
- 8. If the stormwater system was used as an Erosion Control device, it must be restored to design condition prior to operation as a stormwater treatment device, and prior to issuance of any certificate of occupancy for the project.
- 9. All areas must be maintained in a permanently stabilized condition. If vegetated, permanent seeding requirements must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual unless an alternative is specified and approved by the City of Wilmington.
- 10. All applicable operation & maintenance agreements and easements pertaining to each stormwater treatment system shall be referenced on the final plat and recorded with the Register of Deeds upon final plat approval. If no plat is recorded for the site the operation and maintenance agreements and easements shall be recorded with the Register of Deeds so as to appear in the chain of title of all subsequent purchasers under generally accepted searching standards.
- 11. The stormwater management system shall be constructed in its entirety, vegetated and operational for its intended use prior to the construction of any built-upon surface unless prior approval is obtained. City Staff must be notified of any deviation prior to construction of the built-upon surface. Any deviation request shall include justification and must propose an alternative timeline or construction sequence. Notification shall not constitute approval. Any alternative timeline approved by City staff shall become an enforceable component of this permit.





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12. The permittee shall at all times provide the operation and maintenance necessary to assure the permitted stormwater system functions at optimum efficiency. The approved Operation and Maintenance Agreement must be followed in its entirety and maintenance must occur at the scheduled intervals including, but not limited to:

Scheduled inspections (interval noted on the agreement).

b. Sediment removal.

Mowing and revegetation of slopes and the vegetated areas.

 Maintenance of landscape plants, including those within the landscape buffer and on the vegetated shelf.

e. Immediate repair of eroded areas, especially slopes.

f. Debris removal and unclogging of outlet structure, orifice device, flow spreader, catch basins and/or piping.

g. Access to the outlet structure must be available at all times.

- 13. Records of inspection, maintenance and repair for the permitted stormwater system must be kept by the permittee for at least 5 years from the date of record and made available upon request to authorized personnel of the City of Wilmington. The records will indicate the date, activity, name of person performing the work and what actions were taken.
- 14. Upon completion of construction, before a Certificate of Occupancy shall be granted, and prior to operation or intended use of this permitted facility, the applicant shall submit to the City of Wilmington as-built plans for all stormwater management facilities. The plans shall show the final design specifications and the field location, type, depth, invert and planted vegetation of all measures, controls and devices, as-installed. A certification shall be submitted, along with all supporting documentation that specifies, under seal that the as-built stormwater measures, controls and devices are in compliance with the approved stormwater management plans. A final inspection by City of Wilmington personnel will be required prior to issuance of a certificate of occupancy or operation of the permitted facility.
- 15. This permit is not transferable except after application and approval by the City of Wilmington. In the event of a change of ownership, name change or change of address the permittee must submit a completed Name/Ownership Change form to the City of Wilmington at least 30 days prior to the change. It shall be signed by all applicable parties, and be accompanied by all required supporting documentation. Submittal of a complete application shall not be construed as an approved application. The application will be reviewed on its own merits by the City of Wilmington and may or may not be approved. The project must be in compliance with the terms of this permit in order for the transfer request to be considered. The permittee is responsible for compliance with all permit conditions until such time as the City of Wilmington approves the transfer request. Neither the sale of the project nor the conveyance of common area to a third party should be considered as an approved transfer of the permit.
- 16. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to enforcement action by the City of Wilmington, in accordance with Sections 18-52 and 18-53 and any other applicable section of the Land Development Code.





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- 17. The City of Wilmington may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the City of Wilmington for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the City of Wilmington that the changes have been made.
- 18. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances, which may be imposed by other government agencies (local, state, and federal) having jurisdiction.
- 19. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by the City of Wilmington, such as the construction of additional or replacement stormwater management systems.
- 20. The permittee grants City of Wilmington Staff permission to enter the property during normal business hours for the purpose of inspecting all components of the permitted stormwater management facility.
- 21. The permit issued shall continue in force and effect until revoked or terminated by the City of Wilmington. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and re-issuance or termination does not stay any permit condition.
- 22. The approved stormwater management plans and all documentation submitted as part of the approved stormwater management permit application package for this project are incorporated by reference and are enforceable parts of the permit.
- 23. The permittee shall submit a renewal request with all required forms and documentation at least 180 days prior to the expiration date of this permit.
- 24. If any one or more of the conditions of this permit is found to be unenforceable or otherwise invalidated, all remaining conditions shall remain in full effect.

Stormwater Management Permit issued this the 4th day of April, 2017.

for Sterling Cheatham, City Manager

City of Wilmington







GENERAL INFORMATION



Public Services
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212 Operations Center Dr
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STORMWATER MANAGEMENT PERMIT APPLICATION FORM (Form SWP 2.2)

1. Project Name (subdivision, facility, or establishment name - should be consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.): City of Wilmington Fire Station #5 Location of Project (street address): 680 Shipyard Blvd. County: New Hanover Zip: 28408 City: Wilmington 3. Directions to project (from nearest major intersection): From the intersection of US421 and US117 take US117/Shipyard Blvd 633 feet East to the property on the south side of Shipvard Blvd. II. PERMIT INFORMATION Low Density (High Density) 1. Specify the type of project (check one): Drains to an Offsite Stormwater System Drainage Plan Other If the project drains to an Offsite System, list the Stormwater Permit Number(s): City of Wilmington: State – NCDENR/DWQ: 2. Is the project currently covered (whole or in part) by an existing City or State (NCDENR/DWQ) Stormwater Permit? Yes (No) If yes, list all applicable Stormwater Permit Numbers: City of Wilmington: State - NCDENR/DWQ:

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

CAMA Major Sedimentation/Erosion Control

Number, issue date and the type of each permit:

NPDES Industrial Stormwater 404/401 Permit: Proposed Impacts:

If any of these permits have already been acquired please provide the Project Name, Project/Permit



III. CONTACT INFORMATION

1.	Print Applicant / Signing Official's name and title (specifically the developer, property owner, lessee, designated government official, individual, etc. who owns the project):
	Applicant / Organization: City of Wilmington
	Signing Official & Title: Sterling Cheatham, City Manager
	a. Contact information for Applicant / Signing Official:
	Street Address: 102 N. Third Street
	City: VilmingtonState: NCZip: _28401
	Phone: (910) 341-7810 Fax: (910) 341-5839 Email:
	Mailing Address (if different than physical address):
	City:State:Zip:
	b. Please check the appropriate box. The applicant listed above is:
2.	The property owner Skip to item 3) Lessee* (Attach a copy of the lease agreement and complete items 2 and 2a below) Purchaser* (Attach a copy of the pending sales agreement and complete items 2 and 2a below) Developer* (Complete items 2 and 2a below.) Print Property Owner's name and title below, if you are the lessee, purchaser, or developer. (This is the person who owns the property that the project is on.)
	Property Owner / Organization: City of Wilmington
	Signing Official & Title:
	a. Contact information for Property Owner: Street Address:
	City:State:Zip:
	Phone:Fax:Email:
	Mailing Address (if different than physical address):
	City:State:Zip:
3.	(Optional) Print the name and title of another contact such as the project's construction supervisor or another person who can answer questions about the project:
	Other Contact Person / Organization: Galen Jamison, PE, Catlin Engineers and Scientists
	Signing Official & Title:



DEC 6 2016

Street A	ddress:	220 010	Dairy Road				
City:	Wilmington	n		_State:	NC	Zip:	28405
Phone:	910-452-5861	Fax: _	910-452-7563	_Email:	gale	en.jamson@	catlinusa.com
O.I.J	Mark Tille			_0.0.0.			
. PROJECT I	NFORMATION						
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pipe syste	m that will all disc	charge to	an infiltration ba	asın.			
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12. Total Offsite Newly Constructed Impervious Area (improvements made outside of property boundary, in square feet):

Impervious Pavemen	t		1045	
Pervious Pavement	(adj. total, with	% credit applied)		
Impervious Sidewalks	S			
Pervious Sidewalks	(adj. total, with	% credit applied)		
Other (describe)				
Total Offsite Newly	Constructed Impe	rvious Surface	1045	

13. Total Newly Constructed Impervious Surface		
(Total Onsite + Offsite Newly Constructed Impervious Surface) = _	38,263	square fee

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

Basin Information	BMP# A	BMP#	BMP#
Receiving Stream Name	Green Field Lake		
Receiving Stream Index Number	18-76-1		
Stream Classification	C;Sw		
Total Drainage Area (sf)	77,974		
On-Site Drainage Area (sf)	67,704		
Off-Site Drainage Area (sf)	10,271		
Total Impervious Area (sf)	36,189		
Buildings/Lots (sf)	11,831		
Impervious Pavement (sf)	19,901		
Pervious Pavement (sf)	2,596		
Impervious Sidewalks (sf)			
Pervious Sidewalks (sf)			
Other (sf)			117
Future Development (sf)	1,000		
Existing Impervious to remain (sf)			
Offsite (sf)	861		
Percent Impervious Area (%)	46.41%		

How was the off-site impervious area listed above determine

Topog	raphic	SURVEY	man



V. SUBMITTAL REQUIREMENTS

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

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

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

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

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

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

City of Wilmington – Engineering Plan Review Section 212 Operations Center Dr Wilmington, NC 28412



VI. CONSULTANT INFORMATION AND AUTHORIZATION

1.	1. Applicant: Complete this section if you wish to designate authority to anothe (such as a consulting engineer and /or firm) so that they may provide inform this project (such as addressing requests for additional information).	
	Consulting Engineer: Galen Jamison, PE	
	Consulting Firm: Catlin Engineers and Scientists	
	a. Contact information for consultant listed above:	
	Mailing Address: 220 Old Dairy Road	
		28405
	City: <u>Wilmington</u> State: <u>NC</u> Zip:	m@catlinusa.com
	Phone	
VII	VII. PROPERTY OWNER AUTHORIZATION (If Section III(2) has been filled out, or	omplete this section)
pers liste pro the sto	I, (print or type name of person listed in Contact Information, item 2) own the property identified in this permit application, and thus give permission to person listed in Contact Information, item 1) with (print or a listed in Contact Information, item 1) to develop the proposed. A copy of the lease agreement or pending property sales contract has the submittal, which indicates the party responsible for the operation and mainted stormwater system.	ype name of organization ne project as currently s been provided with enance of the
des def Will res Cha	As the legal property owner I acknowledge, understand, and agree by my signa designated agent (<i>entity listed in Contact Information, item 1</i>) dissolves their compart defaults on their lease agreement, or pending sale, responsibility for compliance Wilmington Stormwater Permit reverts back to me, the property owner. As the presponsibility to notify the City of Wilmington immediately and submit a complete Change Form within 30 days; otherwise I will be operating a stormwater treatment valid permit. I understand that the operation of a stormwater treatment facility we violation of the City of Wilmington Municipal Code of Ordinances and may result enforcement including the assessment of civil	ny and/or cancels or e with the City of roperty owner, it is my ed Name/Ownership ent facility without a thout a valid permit is a t in appropriate
s	SEAL	
	Signature:	
	Date:	
	I,	a Notary Public for the
	State of, County of	
	hereby certify that	
	personally appeared before me this day of	

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and acknowledge the due execution	of the application for a stormwater permit. Witness my hand and official seal,
My commission expires:	
VIII. APPLICANT'S CERTIFIC	
that the information included on that the project will be constructed restrictions and protective covers	Contact Information, item 1) Her ling B. Cheathem certify this permit application form is, to the best of my knowledge, correct and in conformance with the approved plans, that the required deed ants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under.
SEAL NOTARY PUBLIC OF THE LOCATION OF THE L	Signature: Stem B. Chrothe Date: Gancary 10, 2017 I. Christine L. Compton a Notary Public for the State of Worth Carolina County of Brunswick, do hereby certify that Sterling B. Cheatham personally appeared before me this day of January 10, 2017, and acknowledge the due execution of the application for a stormwater
permit. Witness my hand and official witne from My commission expires:	nyston nyston ne 7, 2019

Permit No.	
	(to be provided by DWO)

STORMWATER MANAGEMENT PERMIT APPLICATION FORM 401 CERTIFICATION APPLICATION FORM

INFILTRATION BASIN SUPPLEMENT

This form must be filled out, printed and submitted.

The Required Items Checklist (Part III) must be printed, filled out and submitted along with all of the required information.

PROJECT INFORMATION			
Project Name	City of Wilmington Fire Station #5		
Contact Person	Sterling Cheatham		
Phone Number	(910) 341-7810		
Date	8/19/2016		
Orainage Area Number	1		
I. DESIGN INFORMATION			
ite Characteristics			
rainage area			
npervious area	36,189.00 ft ²		
Percent impervious	0.46 %		
esign rainfall depth	1.50 in		
eak Flow Calculations	-		
-yr, 24-hr rainfall depth	0.53 in		
-yr, 24-hr intensity	6.31 in/hr		
re-development 1-yr, 24-hr discharge	2.15 ft ³ /sec		
Post-development 1-yr, 24-hr discharge	5.69 ft ³ /sec		
rest-development 1-yr, 24-nr discharge Pre/Post 1-yr, 24-hr peak flow control	3.54 ft ³ /sec		
	ft /sec		
torage Volume: Non-SA Waters			
linimum design volume required	ft ³		
esign volume provided	ft ³ OK for non-SA wa	aters	
torage Volume: SA Waters			
.5" runoff volume	ft ³		
re-development 1-yr, 24-hr runoff volume	ft ³		
ost-development 1-yr, 24-hr runoff volume	ft ³		
linimum required volume	ft ³		
olume provided	ft ³		
oils Report Summary	9		
oil type	Kr	and the second s	
nfiltration rate	in/hr	ation	
HWT elevation	fmsl		
asin Design Parameters			
rawdown time	2.28 days OK		
asin side slopes	3.00 :1 OK		
asin bottom elevation	42.50 fmsl OK		
torage elevation	45.28 fmsl		
torage Surface Area	6,234.00 ft ²		
op elevation	47.00 fmsl		
	11.00		
asin Bottom Dimensions			
asin length	ft	The state of the s	
asin width	95.00ft	RECEIVED	
ottom Surface Area	2,338.00 ft ²	A	
		DEC 6 2016	

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(to be provided by DWQ) 0.01 OK ac-in N/A OK ft 35.00 ft OK N/A OK ft N/A ft OK N/A OK ft 2.30 ft OK Υ (Y or N) N (Y or N) Need a recorded drainage easement MY Required to capture all runoff from the ultimate build-out (Y or N) N (Y or N) Must provide bypass for larger flows

N

Permit No.

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DEC: 6 2016

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Additional Information

Distance to structure

Distance from surface waters

Distance from water supply well(s)

Naturally occuring soil above shwt

Separation from impervious soil layer

Bottom covered with 4-in of clean sand?

Proposed drainage easement provided?

Capures all runoff at ultimate build-out?

Bypass provided for larger storms?

Pretreatment device provided

Maximum runoff to each inlet to the basin?

Length of vegetative filter for overflow

Permit Number:
(to be provided by City of Wilmington)
BMP Drainage Basin #:

Infiltration Basin Operation and Maintenance Agreement

I will keep a maintenance record on this BMP. This maintenance record will be kept in a log in a known set location. Any deficient BMP elements noted in the inspection will be corrected, repaired or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the removal efficiency of the BMP.

Important maintenance procedures:

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

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

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

BMP element:	Potential problem:	How I will remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the infiltration basin	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
The inlet device: pipe or swale	The pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged (if applicable).	Replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.



AUG 2 4 2016



BMP element:	Potential problem:	How I will remediate the problem:
The forebay	Sediment has accumulated	Search for the source of the
	and reduced the depth to 75%	sediment and remedy the problem if
	of the original design depth.	possible. Remove the sediment and
		dispose of it in a location where it
		will not cause impacts to streams or
		the BMP.
	Erosion has occurred or	Provide additional erosion
	riprap is displaced.	protection such as reinforced turf
		matting or riprap if needed to
		prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by
		hand. If pesticides are used, wipe
		them on the plants rather than
		spraying.
The main treatment area	A visible layer of sediment	Search for the source of the
	has accumulated.	sediment and remedy the problem if
		possible. Remove the sediment and
		dispose of it in a location where it
		will not cause impacts to streams or
	:	the BMP. Replace any media that
		was removed in the process.
		Revegetate disturbed areas
		immediately.
	Water is standing more than	Replace the top few inches of filter
	5 days after a storm event.	media and see if this corrects the
		standing water problem. If so,
		revegetate immediately. If not,
		consult an appropriate professional
		for a more extensive repair.
	Weeds and noxious plants are	Remove the plants by hand or by
	growing in the main	wiping them with pesticide (do not
	treatment area.	spray).
The embankment	Shrubs or trees have started	Remove shrubs or trees
	to grow on the embankment.	immediately.
	An annual inspection by an	Make all needed repairs.
	appropriate professional	
	shows that the embankment	
mi diali	needs repair.	
The outlet device	Clogging has occurred.	Clean out the outlet device. Dispose
		of the sediment off-site.
retY + +	The outlet device is damaged	Repair or replace the outlet device.
The receiving water	Erosion or other signs of	Contact the NC Division of Water
	damage have occurred at the outlet.	Quality 401 Oversight Unit at 919- 733-1786.

Permit Number:	
(to be pro	vided by City of Wilmington)

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed above. I agree to notify the City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: City of Wilmington Fire Station #5
BMP drainage basin number: 1
Print name: City of Wilmington, Sterling Cheatham
Title:City Manager
Address: 102 N. Third Street, Wilmington, NC 28401
Phone:(910) 341-7810
Signature: Ster B. Chedh
Date: <u>January</u> 10, 2017
Note: The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.
I, <u>Christine L. Compton</u> , a Notary Public for the State of <u>North Carolina</u> , County of <u>Brunswick</u> , do hereby certify that <u>Sterling B. Cheatham</u> personally appeared before me this <u>10</u> th
day of January, 3017, and acknowledge the due execution of the
forgoing infiltration basin maintenance requirements. Witness my hand and official seal,
NOTARY OF THE PUBLIC STATES
SEAL

Form SW401-Infiltration Basin O&M-Rev.3

My commission expires_

Permit Number:_	
(to be prov	rided by City of Wilmington)