



Public Services

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

December 19, 2018

Sterling Cheatham, City Manager
City of Wilmington
102 N. Third Street
Wilmington, NC 28401

**Subject: Stormwater Management Permit No. 2017018R1
City of Wilmington Fire Station #5
High Density Development**

Dear Mr. Cheatham:

The City of Wilmington Engineering Division has received a request for a revision to the Stormwater Management Permit for City of Wilmington Fire Station #5. Having reviewed the application and all supporting materials, the City of Wilmington has determined that the proposed revision meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

The revisions include:

- Addition of Hazmat trailer parking area behind the fire station in lieu of proposed impervious elsewhere within the project limits.
- Total off-site newly constructed impervious surface area is reduced from 1,045sf to 586sf.
- Total on-site newly constructed impervious surface area is increased from 20,889sf to 21,648sf
- Overall newly constructed impervious surface area increase is 300 sf.
- No changes to the SCM.

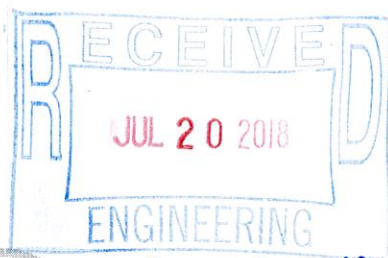
Please be aware all terms and conditions of the permit Issued on April 4, 2017 remain in full force and effect. Any additional changes to the approved plans must be approved by this office prior to construction. The issuance of the plan revision does not preclude the permittee from complying with all other applicable statutes, rules, regulations or ordinances which may have jurisdiction over the proposed activity, and obtaining a permit or approval prior to construction.

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

Sincerely,

for Sterling Cheatham, City Manager
City of Wilmington

cc: M. Robin Austin, PE, Catlin Engineers and Scientists
Jeff Walton, Associate Planner, City of Wilmington



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**unless noted otherwise*

STORMWATER MANAGEMENT PERMIT APPLICATION FORM (Form SWP 2.2)

I. GENERAL INFORMATION

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

City of Wilmington Fire Station #5

2. Location of Project (street address):

680 Shipyard Blvd.

City: Wilmington

County: New Hanover

Zip: 28412

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 Shipyard Blvd.

II. PERMIT INFORMATION

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

City of Wilmington: _____ State – NCDENR/DWQ: _____

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

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: 2017018 State – NCDENR/DWQ: SW8 160820

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

CAMA Major ☒ Sedimentation/Erosion Control

NPDES Industrial Stormwater ☐ 404/401 Permit: Proposed Impacts: _____

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

City of Wilmington Fire Station #5, NEWHA-2017-003, September 14, 2016

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: Wilmington State: NC Zip: 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:

The property owner (Skip to item 3)

Lessee* (Attach a copy of the lease agreement and complete items 2 and 2a below)

Purchaser* (Attach a copy of the pending sales agreement and complete items 2 and 2a below)

Developer* (Complete items 2 and 2a below.)

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

Property Owner / Organization: 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: _____

Signing Official & Title: _____

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

Street Address: 220 Old Dairy Road

City: Wilmington State: NC Zip: 28405

Phone: 910-452-5861 Fax: 910-452-7563 Email: robin.austin@catlinusa.com

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

IV. PROJECT INFORMATION

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

Runoff from the from the site will be conveyed via overland sheet flow, open channel and an underground pipe system that will all discharge to an infiltration basin.

2. Total Property Area: 74,923 square feet

3. Total Coastal Wetlands Area: 0 square feet

4. Total Surface Water Area: 0 square feet

5. Total Property Area (2) – Total Coastal Wetlands Area (3) – Total Surface Water Area (4) = Total Project Area: 74,923 square feet.

6. Existing Impervious Surface within Property Area: 2,665 square feet

7. Existing Impervious Surface to be Removed/Demolished: 1,763 square feet

8. Existing Impervious Surface to Remain: 902 square feet

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

Buildings/Lots	11,831
Impervious Pavement	21,648
Pervious Pavement (adj. total, with 0 % credit applied)	2,596
Impervious Sidewalks	
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Future Development	1000
Total Onsite Newly Constructed Impervious Surface	37,075

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 37,977 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 50.69%

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

Impervious Pavement	586
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Total Offsite Newly Constructed Impervious Surface	586

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 38,563 square feet

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

Basin Information	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)	20,510		
Pervious Pavement (sf)	2,596		
Impervious Sidewalks (sf)			
Pervious Sidewalks (sf)			
Other (sf)			
Future Development (sf)	1000		
Existing Impervious to remain (sf)			
Offsite (sf)	252		
Percent Impervious Area (%)	46.41%		

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

Topographic survey map

V. SUBMITTAL REQUIREMENTS

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

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

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

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

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

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

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

VI. CONSULTANT INFORMATION AND AUTHORIZATION

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

Consulting Engineer: M. Robin Austin, PE

Consulting Firm: Catlin Engineers and Scientists

- a. Contact information for consultant listed above:

Mailing Address: 220 Old Dairy Road

City: Wilmington State: NC Zip: 28405

Phone: 910-452-5861 Fax: 910-452-7563 Email: robin.austin@catlinusa.com

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

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

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

SEAL

Signature: _____

_____ Date: _____

I, _____, a Notary Public for the State of _____, County of _____, do

hereby certify that _____

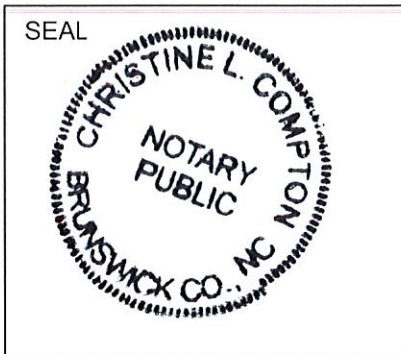
personally appeared before me this day of _____, _____,

and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

My commission expires: _____

VIII. APPLICANT'S CERTIFICATION

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



Signature: Sterling B. Cheatham

Date: 7/10/18

I, Christine L. Compton, a Notary Public for the State of North Carolina, County of Brunswick, do hereby certify that Sterling B. Cheatham personally appeared before me this day of 7/10/18, and acknowledge the due execution of the application for a stormwater

permit. Witness my hand and official seal,

My commission expires: June 7.2019

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.

I. PROJECT INFORMATION	
Project Name	City of Wilmington Fire Station #5
Contact Person	Sterling Cheatham
Phone Number	(910) 341-7810
Date	8/19/2016
Drainage Area Number	1

II. DESIGN INFORMATION	
Site Characteristics	
Drainage area	77,974.00 ft ²
Impervious area	36,189.00 ft ²
Percent impervious	0.46 %
Design rainfall depth	1.50 in
Peak Flow Calculations	
1-yr, 24-hr rainfall depth	0.53 in
1-yr, 24-hr intensity	6.31 in/hr
Pre-development 1-yr, 24-hr discharge	2.15 ft ³ /sec
Post-development 1-yr, 24-hr discharge	5.69 ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	3.54 ft ³ /sec
Storage Volume: Non-SA Waters	
Minimum design volume required	4,558.60 ft ³
Design volume provided	11,449.00 ft ³ OK for non-SA waters
Storage Volume: SA Waters	
1.5" runoff volume	ft ³
Pre-development 1-yr, 24-hr runoff volume	ft ³
Post-development 1-yr, 24-hr runoff volume	ft ³
Minimum required volume	ft ³
Volume provided	ft ³
Soils Report Summary	
Soil type	Kr
Infiltration rate	2.15 in/hr Use 1.08 in calculation
SHWT elevation	40.20 fmsl
Basin Design Parameters	
Drawdown time	2.28 days OK
Basin side slopes	3.00 :1 OK
Basin bottom elevation	42.50 fmsl OK
Storage elevation	45.28 fmsl
Storage Surface Area	6,234.00 ft ²
Top elevation	47.00 fmsl
Basin Bottom Dimensions	
Basin length	220.00 ft
Basin width	95.00 ft
Bottom Surface Area	2,338.00 ft ²

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DEC 6 2016

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Additional Information

Maximum runoff to each inlet to the basin?	0.01	ac-in	OK
Length of vegetative filter for overflow	N/A	ft	OK
Distance to structure	35.00	ft	OK
Distance from surface waters	N/A	ft	OK
Distance from water supply well(s)	N/A	ft	OK
Separation from impervious soil layer	N/A	ft	OK
Naturally occurring soil above shwt	2.30	ft	OK
Bottom covered with 4-in of clean sand?	Y	(Y or N)	OK
Proposed drainage easement provided?	N	(Y or N)	Need a recorded drainage easement
Captures all runoff at ultimate build-out?	N Y	(Y or N)	Required to capture all runoff from the ultimate build-out
Bypass provided for larger storms?	N	(Y or N)	Must provide bypass for larger flows
Pretreatment device provided	N		

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DEC: 6 2016

ENGINEERING

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.

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AUG 24 2016

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

Permit Number: _____
(to be provided 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

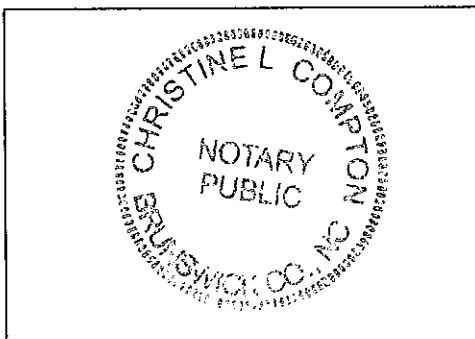
Phone: (910) 341-7810

Signature: Sterling B. Cheatham

Date: January 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, Christine L. Compton, a Notary Public for the State of North Carolina, County of Brunswick, do hereby certify that Sterling B. Cheatham personally appeared before me this 10th day of January, 2017, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements. Witness my hand and official seal,



SEAL

My commission expires June 7, 2019

Permit Number: _____
(to be provided by City of Wilmington)