



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: **Amberleigh Shores II, LLC**
PROJECT: **Amberleigh Shores Ph II**
ADDRESS: **7758 Market St.**
PERMIT #: **2018045**
DATE: **1/4/2019**

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 1/4/2029 and shall be subject to the following specified conditions and limitations:

Section 2 - CONDITIONS

1. This approval is valid only for the stormwater management system as proposed on the approved stormwater management plans dated 1/4/2019.
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.
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.



Public Services

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

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.
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:
 - a. Scheduled inspections (interval noted on the agreement).
 - b. Sediment removal.
 - c. Mowing and revegetation of slopes and the vegetated areas.
 - d. 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.



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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.
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.



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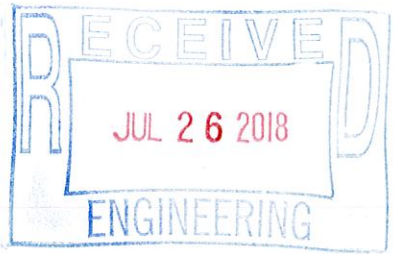
21. The permit issued shall continue in force and effect until revoked or terminated by the City of Wilmington. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and re-issuance or termination does not stay any permit 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 January, 2019

A handwritten signature in black ink, appearing to read 'Sterling Cheatham', is written over a horizontal line.

for Sterling Cheatham, City Manager
City of Wilmington

2018045



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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.):

Amberleigh Shores Ph II

2. Location of Project (street address):

7758 Market Street

City: Wilmington County: New Hanover Zip: 28411

3. Directions to project (from nearest major intersection):

From Market Street and Bayshore Drive Intersection head northeast on Market Street for

approximately 0.67 miles, project is on the right.

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: _____ State – NCDENR/DWQ: _____

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:

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: Amberleigh Shores, LLC

Signing Official & Title: Ryan Foster, Sr. VP

- a. Contact information for Applicant / Signing Official:

Street Address: 900 Brookstone Centre Parkway

City: Columbus State: GA Zip: 31904

Phone: 706.324.4000 Fax: 706.324.4150 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: See Attached

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: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

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.

The majority of the stormwater will be treated by wet ponds with the WQV being routed to a level

spreader and vegetated filter strip in accordance with 15A NCAC 02H .1019 (7). Runoff for the

Building 6 and 7 area will be treated by an infiltration basin and permeable pavement.

2. Total Property Area: 708,286 square feet

3. Total Coastal Wetlands Area: _____ square feet

4. Total Surface Water Area: _____ square feet

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

6. Existing Impervious Surface within Property Area: 45,430 square feet

7. Existing Impervious Surface to be Removed/Demolished: 45,430 square feet

8. Existing Impervious Surface to Remain: 0 square feet

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

Buildings/Lots	108,923
Impervious Pavement	157,067
Pervious Pavement (adj. total, with 100% credit applied)	5,848 (0)
Impervious Sidewalks	47,754
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Future Development	25,367
Total Onsite Newly Constructed Impervious Surface	339,111

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 339,111 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 47.9 %

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

Impervious Pavement	35,153
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	5,028
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Total Offsite Newly Constructed Impervious Surface	40,181

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 379,292 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 # 1	BMP # 2	BMP # 3A
Receiving Stream Name	Pages Creek	Pages Creek	Pages Creek
Receiving Stream Index Number	18-87-22	18-87-22	18-87-22
Stream Classification	SA; HQW	SA; HQW	SA; HQW
Total Drainage Area (sf)	121,280	413,200	31,724
On-Site Drainage Area (sf)	121,280	362,800	18,459
Off-Site Drainage Area (sf)	0	50,400	13,265
Total Impervious Area (sf)	94,766	263,029	15,862
Buildings/Lots (sf)	23,267	77,547	8,109
Impervious Pavement (sf)	52,068	99,613	1,485
Pervious Pavement (sf)	0	0	0
Impervious Sidewalks (sf)	7,014	38,409	2,291
Pervious Sidewalks (sf)	0	0	0
Other (sf)	0	0	0
Future Development (sf)	12,417	9,524	1,732
Existing Impervious to remain (sf)	0	0	0
Offsite (sf)	0	37,936	2,245
Percent Impervious Area (%)	78.1	63.7	50.0

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

Proposed improvements within Phase I property boundary or Hwy 17 R.O.W.

Basin Information	BMP # 3B	BMP #	BMP #
Receiving Stream Name	Pages Creek		
Receiving Stream Index Number	18-87-22		
Stream Classification	SA; HQW		
Total Drainage Area (sf)	14,193		
On-Site Drainage Area (sf)	13,712		
Off-Site Drainage Area (sf)	481		
Total Impervious Area (sf)	5,635	DTF 10.04.18	
Buildings/Lots (sf)	0		
Impervious Pavement (sf)	3,901		
Pervious Pavement (sf)	5,848 (0 @ 100% Pervious)		
Impervious Sidewalks (sf)	40		
Pervious Sidewalks (sf)	0		
Other (sf)	0		
Future Development (sf)	1,694		
Existing Impervious to remain (sf)	0		
Offsite (sf)	0		
Percent Impervious Area (%)	39.7		

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

Proposed improvements within Phase I property boundary or Hwy 17 R.O.W.

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: Jeremy Blair, PE

Consulting Firm: Paramounte Engineering, Inc

a. Contact information for consultant listed above:

Mailing Address: 122 Cinema Drive

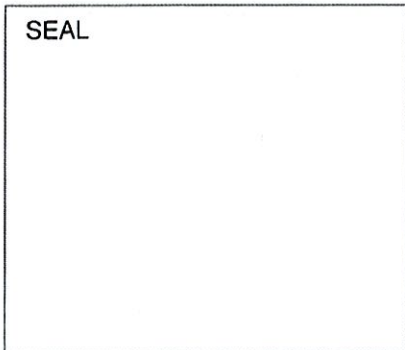
City: Wilmington State: NC Zip: 28403

Phone: 910.791.6707 Fax: 910.791.6760 Email: jblair@paramounte-eng.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.



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) Ryan Foster 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: Ryan Foster
Date: 5/7/18

I, Caroline M. Smith a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018 and acknowledge the due execution of the application for a stormwater

permit. Witness my hand and official seal,
Caroline M. Smith

My commission expires: 02/01/2022



SUPPLEMENT-EZ FORM COVER PAGE

Please indicate the types, quantities and locations of SCMs that will be used on this project:

	Quantity	Location(s)
Infiltration System	1	BMP #3A
Bioretention Cell Wet Pond	2	BMP #1 and #2
Stormwater Wetland Permeable Pavement	1	BMP #3B
Sand Filter		
Rainwater Harvesting Green Roof		
Level Spreader-Filter Strip	2	BMP #1 and #2
Disconnected Impervious Surface Treatment Swale Dry Pond		

Project Name:
Amberleigh Shores Ph II

Address
Market Street

City / Town
Wilmington

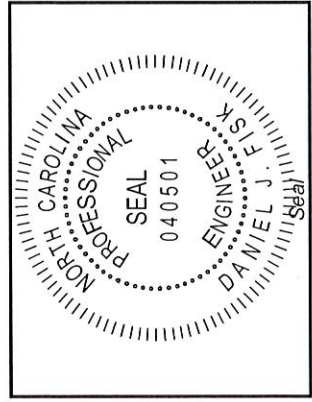
Designer information for this project:

Name and Title: Daniel J. Fisk, PE
Organization: Paramounte Engineering, Inc
Street address: 122 Cinema Drive
City, State, Zip: Wilmington, NC 28403
Phone number(s): 910.791.6707
Email: dfisk@paramounte-eng.com

Applicant:

Company: Flournoy Development Company, LLC
Contact: Luke Addison
Mailing Address: 900 Brookstone Centre Parkway
City, State, Zip: Columbus, GA 31904
Phone number(s): 706.243.9476
Email: Luke.Addison@flournoydev.com

Designer



D. J. Fisk

Signature of Designer

10.04.18

Date

Certification Statement:

I certify, under penalty of law: that this Supplement-EZ form and all supporting information were prepared under my direction or supervision;
 - that the information provided in the form is, to the best of my knowledge and belief, true, accurate, and complete; and

- that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations as well as a report being made to my professional board.

INFILTRATION SYSTEMS

3A-1

THE DRAINAGE AREA		3A	Break down of BUA in the drainage area (both new and existing):
Drainage area number		3A	
Total coastal wetlands area (sq ft)		sf	- Parking / driveway (sq ft) 3350 sf
Total surface water area (sq ft)		sf	- Sidewalk (sq ft) 2671 sf
Total drainage area (sq ft)		31724 sf	- Roof (sq ft) 8109 sf
BUA associated with existing development (sq ft)		sf	- Roadway (sq ft) ---
Proposed new BUA (sq ft)		15862 sf	- Other, please specify in the comment box below (sq ft) 1732 sf
Percent BUA of drainage area		50%	Total BUA (sq ft) 15862 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM			
Stormwater program(s) that apply (please specify): Coastal, SA Waters			
Design rainfall depth (in) 3.85 in			
Minimum volume required (cu ft) 2286 cf			
Design volume of SCM (cu ft) 3026 cf			
GENERAL MDC FROM 02H .1050			
#1	Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction? Yes
#2	Is the SCM located on or near contaminated soils?	No	#8 Does the maintenance access comply with General MDC (8)? Yes
#3	What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)? Yes
#3	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)? N/A
#4	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)? Yes
#5	Is there a bypass for flows in excess of the design flow?	No	#12 Is there an O&M Plan that complies with General MDC (12)? Yes
#6	What is the method for dewatering the SCM for maintenance?	Pump (preferred)	#13 Was the SCM designed by an NC licensed professional? Yes
INFILTRATION SYSTEM MDC FROM 02H .1051			
#1	SHWT elevation (fmsl)	23.72 ft	#5 Length (ft) 180 ft
#1	Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	#5 Width (ft) 20 ft
#1	Soil infiltration rate (in/hr)	.61 in/hr	#5 Depth/Height (ft) 2.25 ft
#1	Briefly describe the hydraulic properties and characteristics of the soil profile: See Report		#5 Surface area of the bottom of the infiltration system (sq feet) 3570 sf
			#5 Ponding depth of the design volume (in) 9 in
			#5 Estimated dewatering time (hours) 17 hrs
			#5 For trenches only: Perforated pipe diameter, if applicable (inches)
#2	SHWT elevation (fmsl)	23.72 ft	#5 For trenches only: Number of laterals
#2	Bottom of the infiltration system (fmsl)	25.75 ft	#5 For trenches only: Stone type, if applicable
#2	Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	N/A	#5 For trenches only: Stone void ratio (%)
#3	Proposed slope of the subgrade surface (%)	0%	#5 For trenches only: Is stone free of fines?
#3	Are terraces or baffles provided?	No	#5 For trenches only: Is the stone wrapped in geotextile fabric?
#4	Describe the pretreatment that will be provided: Inlet Sump		#6 Is the infiltration system located underground? No
			#6 If so, has at least one infiltration port been provided? N/A

ADDITIONAL INFORMATION

Please use this space to provide any information about this infiltration system that you think is relevant to the review:
Other = Misc. / Future

WET POND

THE DRAINAGE AREA		1			
Break down of BUA in the drainage area (both new and existing):					
Drainage area number		1			
Total coastal wetlands area (sq ft)	sf	52068 sf			
Total surface water area (sq ft)	sf	7014 sf			
Total drainage area (sq ft)	121280 sf	23267 sf			
BUA associated with existing development (sq ft)	sf	—			
Proposed new BUA (sq ft)	94766 sf	12417 sf			
Percent BUA of drainage area	78.1%	94766 sf			
COMPLY WITH THE APPLICABLE STORMWATER PROGRAM					
Stormwater program(s) that apply (please specify):					
Coastal, SA Waters					
GENERAL MDC FROM 02H .1050					
#1	Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7	If applicable, with the SCM be cleaned out after construction?	Yes
#2	Is the SCM located on or near contaminated soils?	No	#8	Does the maintenance access comply with General MDC (8)?	Yes
#3	What are the side slopes of the SCM (H:V)?	3:1	#9	Does the drainage easement comply with General MDC (9)?	Yes
#4	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	Yes	#10	If the SCM is on a single family lot, does the plat comply with General MDC (10)?	N/A
#5	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11	Is there an O&M Agreement that complies with General MDC (11)?	Yes
#6	Is there a bypass for flows in excess of the design flow?	No	#12	Is there an O&M Plan that complies with General MDC (12)?	Yes
#6	What is the method for dewatering the SCM for maintenance?	Pump (preferred)	#13	Was the SCM designed by an NC licensed professional?	Yes
WET POND MDC FROM 02H .1053					
#1	Method used	SAIDA	#6	Width of the vegetated shelf (feet)	6 ft
#1	Surface area of the main permanent pool (square feet)	4575 sf	#6	Location of vegetated shelf	Submerged
#1	Volume of the main permanent pool (cubic feet)	16130 cf	#6	Elevation of top of shelf (fmsl)	15.5 ft
#2	Average depth of the main pool (feet)	4.8 ft	#6	Elevation of bottom of shelf (fmsl)	14.5 ft
#2	Was the vegetated shelf included in the calculation of average depth?	No	#6	Slope of vegetated shelf (H:V)	6:1
#2	Elevation of the bottom of the permanent pool (fmsl)	7.0 ft	#7	Diameter of drawdown orifice (inches)	2.0 in
#2	Elevation of the top of the permanent pool (fmsl)	15.5 ft	#7	Drawdown time for the temporary pool (hours)	71 hrs
#2	Elevation of the top of the temporary pool (fmsl)	19 ft	#7	Does the orifice drawdown from below the top surface of the permanent pool?	Yes
#3	Depth provided for sediment storage (inches)	12 in	#8	Does the pond minimize impacts to the receiving channel from the 1-yr, 24-hr storm?	Yes
#4	Are the inlet(s) and outlet located in a manner that avoids short-circuiting?	Yes	#9	Are fountains proposed?	N/A
#4	Describe any measures, such as berms or baffles, that will be taken to improve the flow path.		#9	If yes, is documentation provided per Wet Pond MDC (9)?	N/A
N/A			#10	Is a trash rack or other device provided to protect the outlet system?	Yes
#5	Volume of the forebay (cubic feet)	2439	#11	Are the dam and embankment planted in non-clumping turf grass?	Yes
#5	Is this 15-20% of the volume in the main pool?	Yes	#11	Species of turf that will be used on the dam and embankment	Bermuda or Centipede
#5	Depth of forebay at entrance (inches)	42 in	Equal numbers of each species (pickersweed, duck potato, swamp rose, blue flag and cardinal flower) with similar species grouped. Plants installed in a checkerboard pattern 24" o.c.		
#5	Depth of forebay at exit (inches)	12 in			
#5	Does water flow out of the forebay in a non-erosive manner?	Yes			
#5	Clean-out depth for forebay (inches)	42 in			
#5	Will the forebay be cleaned out when the depth is reduced to less than the above?	Yes			
ADDITIONAL INFORMATION					
Please use this space to provide any additional information about this wet pond that you think is relevant to the review:					
Other = Misc. / Future					

THE DRAINAGE AREA		2
Break down of BUA in the drainage area (both new and existing):		
Drainage area number		2
Total coastal wetlands area (sq ft)	sf	132901 sf
Total surface water area (sq ft)	sf	43057 sf
Total drainage area (sq ft)	413200 sf	77547 sf
BUA associated with existing development (sq ft)	sf	—
Proposed new BUA (sq ft)	263029 sf	9524 sf
Percent BUA of drainage area	63.7%	263029 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM		
Stormwater program(s) that apply (please specify): Coastal, SA Waters		
GENERAL MDC FROM 02H .1050		
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	Yes
#2 Is the SCM located on or near contaminated soils?	No	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	N/A
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	Yes
#5 Is there a bypass for flows in excess of the design flow?	No	Yes
#6 What is the method for dewatering the SCM for maintenance?	Pump (preferred)	Yes
WET POND MDC FROM 02H .1053		
#1 Method used	SA/DA	6 ft
#1 Surface area of the main permanent pool (square feet)	13600 sf	Submerged
#1 Volume of the main permanent pool (cubic feet)	52678 cf	15 ft
#2 Average depth of the main pool (feet)	4.8 ft	14 ft
#2 Was the vegetated shelf included in the calculation of average depth?	No	6:1
#2 Elevation of the bottom of the permanent pool (fmsl)	7 ft	3.0 in
#2 Elevation of the top of the permanent pool (fmsl)	15 ft	40.3 hrs
#2 Elevation of the top of the temporary pool (fmsl)	18.4 ft	Yes
#3 Depth provided for sediment storage (inches)	12 in	Yes
#4 Are the inlet(s) and outlet located in a manner that avoids short-circuiting?	Yes	N/A
#4 Describe any measures, such as berms or baffles, that will be taken to improve the flow path:		N/A
#5 Volume of the forebay (cubic feet)	8090	Yes
#5 Is this 15-20% of the volume in the main pool?	Yes	Yes
#5 Depth of forebay at entrance (inches)	60 in	Bermuda or Centipede
#5 Does water flow out of the forebay in a non-erosive manner?	Yes	
#5 Clean-out depth for forebay (inches)	60 in	
#5 Will the forebay be cleaned out when the depth is reduced to less than the above?	Yes	
ADDITIONAL INFORMATION		
Please use this space to provide any additional information about this wet pond that you think is relevant to the review: Other = Misc / Future		
Equal numbers of each species (pickrelweed, duck potato, swamp rose, blue flag and cardinal flower) with similar species grouped. Plants installed in a checkerboard pattern 24" o.c.		

PERMEABLE PAVEMENT

38

DZF
10.04.18

THE DRAINAGE AREA	
Drainage area number	3B
Total coastal wetlands area (sq ft)	sf
Total surface water area (sq ft)	sf
Total drainage area (sq ft)	14193 sf
BUA associated with existing development (sq ft)	sf
Proposed new BUA (sq ft)	7097 sf
Percent BUA of drainage area	50%

BREAK DOWN OF BUA IN THE DRAINAGE AREA (both new and existing):	
- Parking / driveway (sq ft)	3901 sf
- Sidewalk (sq ft)	40 sf
- Roof (sq ft)	sf
- Roadway (sq ft)	—
- Other, please specify in the comment box below (sq ft)	1,694
Total BUA (sq ft)	5,635

COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM	
Stormwater program(s) that apply (please specify):	3.850 in
Minimum volume required (cu ft)	1454 cf
Design volume of SCM (cu ft)	1754 cf

GENERAL MDC FROM 02H .1050	
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes
#2 Is the SCM located on or near contaminated soils?	No
#3 What are the side slopes of the SCM (H:V)?	—
#4 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No
#5 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes
#6 Is there a bypass for flows in excess of the design flow?	Yes
#7 What is the method for dewatering the SCM for maintenance?	Pump (preferred)

PERMEABLE PAVEMENT MDC FROM 02H .1055	
#1 Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes
#1 Briefly describe the hydraulic properties and characteristics of the soil profile:	See Report

NCSU Simple Infiltration Test or other appropriate test such as ASTM C1701	
#7 Area of permeable pavement to be installed (square feet)	5848 sf
#7 Area of screened roof runoff that is directed to pavement (square feet)	sf
#7 Area of additional built-upon area runoff that is directed to pavement (square feet)	5635 sf
#7 Will runoff from pervious surfaces be directed away from the pavement?	Yes
#8 Dewatering time (hours)	6 hrs
#8 Is additional media being added to the soil profile?	No
#9 Is at least one observation well per terrace been provided at the low point(s)?	Yes
#10 Is this a detention permeable pavement system?	No
#10 If so, what is the drawdown time for the design storm?	N/A
#11 Have edge restraints been provided?	Yes
#12 Will the subgrade be graded when dry?	Yes
#13 Will the permeable pavement be protected from sediment during construction?	Yes
#13 Will an in-situ permeability test be conducted after site stabilization	Yes

ADDITIONAL INFORMATION

Please use this space to provide any additional information about this permeable pavement design that you think is relevant to the review.
 Other = 5848 sf of pervious pavement at 25% impervious = 1462 and

LEVEL SPREADER - FILTER STRIP (LS-FS)

THE DRAINAGE AREA		1
Drainage area number		
Total coastal wetlands area (sq ft)	sf	52068 sf
Total surface water area (sq ft)	sf	7014 sf
Total drainage area (sq ft)	121280 sf	23267 sf
BUA associated with existing development (sq ft)		
Proposed new BUA (sq ft)	94766 sf	12417 sf
Percent BUA of drainage area	78.1%	94766 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM		
Stormwater program(s) that apply (please specify):		
Coastal, SA Waters		
GENERAL MDC FROM 02H .1050		
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	N/A
#2 Is the SCM located on or near contaminated soils?	No	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	Yes
#4 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	Yes	N/A
#5 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	Yes
#6 Is there a bypass for flows in excess of the design flow?	Yes	Yes
#7 What is the method for dewatering the SCM for maintenance?	Pump (preferred)	Yes
LS-FS MDC FROM 02H .1059		
#1 Length of level spreader (feet)	14 ft	2.0 in
#2 LS-FS receives flow from	Another SCM	18.0 in
#2 Flow rate to LS-FS during design storm (cfs)	.18 cfs	Aggregate
#2 Is a bypass device provided?	Yes	30 ft
#2 If yes, describe the bypass device:		Yes
Separate Outlet Structure in Wet Pond		
#3 Is this LS-FS designed to receive flow from the drainage area during the 10-year storm?	Yes	No
#4 Has a blind swale been provided?	Yes	4%
#4 Does the blind swale provide for uniform overtopping of the level spreader?	Yes	Yes
#5 What material will be used for the level spreader?	Concrete	Yes
#5 Will the construction tolerance be ≤ 0.25 inch along the level spreader length?	Yes	Bermuda or Centipede
#6 Will the level spreader be straight or convex in plan view?	Yes	Yes
ADDITIONAL INFORMATION		
Please use this space to provide any additional information about this LS-FS that you think is relevant to the review.		
Secondary SCM behind wet pond for discharge within 1/2 mile of SA water requirements in accordance with 15A NCAC 02H .1019 (7)		

LEVEL SPREADER - FILTER STRIP (LS-FS)

THE DRAINAGE AREA		2
Drainage area number		2
Total coastal wetlands area (sq ft)		132901 sf
Total surface water area (sq ft)		43057 sf
Total drainage area (sq ft)		77547 sf
BUA associated with existing development (sq ft)		413200 sf
Proposed new BUA (sq ft)		263029 sf
Percent BUA of drainage area		63.7%
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM		
Stormwater program(s) that apply (please specify):		
Design rainfall depth (in)		
Minimum volume required (cu ft)		
Design volume of SCM (cu ft)		
GENERAL MDC FROM 02H .1050		
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	
#2 Is the SCM located on or near contaminated soils?	No	N/A
#3 What are the side slopes of the SCM (H:V)?	3:1	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	Yes	Yes
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	N/A
#5 Is there a bypass for flows in excess of the design flow?	Yes	Yes
#6 What is the method for dewatering the SCM for maintenance?	Pump (preferred)	Yes
LS-FS MDC FROM 02H .1059		
#1 Length of level spreader (feet)	14 ft	2.0 in
#2 LS-FS receives flow from	Another SCM	18.0 in
#2 Flow rate to LS-FS during design storm (cfs)	.40 cfs	Aggregate
#2 Is a bypass device provided?	Yes	30 ft
#2 If yes, describe the bypass device:		Yes
Separate Outlet Structure in Wet Pond		No
#3 Is this LS-FS designed to receive flow from the drainage area during the 10-year storm?	Yes	1.2%
#4 Has a blind swale been provided?	Yes	Yes
#4 Does the blind swale provide for uniform overtopping of the level spreader?	Yes	Yes
#5 What material will be used for the level spreader?	Concrete	Yes
#5 Will the construction tolerance be < 0.25 inch along the level spreader length?	Yes	Bermuda or Centipede
#6 Will the level spreader be straight or convex in plan view?	Yes	Yes
ADDITIONAL INFORMATION		
Please use this space to provide any additional information about this LS-FS that you think is relevant to the review.		

Permit Number: _____

(to be provided by City of Wilmington)

BMP Drainage Basin #: _____

Wet Detention 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.

The wet detention basin system is defined as the wet detention basin, pretreatment including forebays and the vegetated filter if one is provided.

This system (check one):

does does not incorporate a vegetated filter at the outlet.

This system (check one):

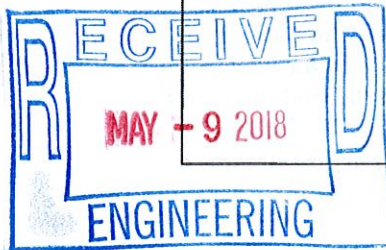
does does not incorporate pretreatment other than a forebay.

Important maintenance procedures:

- Immediately after the wet detention basin is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
- No portion of the wet detention pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.
- Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet detention basin.
- If the basin must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized to the maximum extent practical.
- Once a year, a dam safety expert should inspect the embankment.

After the wet detention pond is established, it should be inspected **once a month and within 24 hours after every storm event greater than 1.5 inches**. Records of operation and maintenance should be kept in a known set location and must 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 side slopes of the wet detention 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.
	Vegetation is too short or too long.	Maintain vegetation at a height of approximately six inches.



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

BMP element:	Potential problem:	How I will remediate the problem:
The inlet device: pipe or swale	The pipe is clogged.	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged.	Replace the pipe.
	Erosion is occurring in the swale.	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.
The forebay	Sediment has accumulated to a depth greater than the original design depth for sediment storage.	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.	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 pesticide is used, wipe it on the plants rather than spraying.
The vegetated shelf	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices
	The plant community and coverage is significantly (>25%) different from approved landscape plan.	Restore plant vegetation to approved condition. If landscape plan needs to be adjusted to specify vegetation more appropriate for site conditions, contact City Stormwater or Engineering Staff.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary.
The main treatment area	Sediment has accumulated to a depth greater than the original design sediment storage 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.

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

BMP element:	Potential problem:	How I will remediate the problem:
The main treatment area (continued)	Algal growth covers over 25% of the area.	Consult a professional to remove and control the algal growth.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
The embankment	Shrubs have started to grow on the embankment.	Remove shrubs immediately.
	Evidence of muskrat or beaver activity is present.	Use traps to remove muskrats and consult a professional to remove beavers.
	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.
	An annual inspection by an appropriate professional shows that the embankment needs repair. (if applicable)	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 local NC Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786.

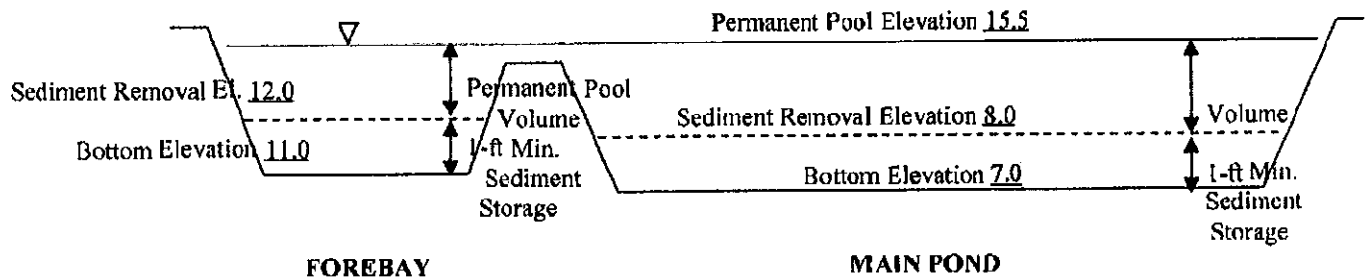
The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads 7.5 feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads 3.5 feet in the forebay, the sediment shall be removed.

BASIN DIAGRAM

(fill in the blanks)



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: Amberleigh Shores Ph II

BMP drainage basin number: 1

Print name: Ryan Foster for Amberleigh Shores II, LLC

Title: Sr. VP

Address: 980 Brookstone Centre Pkwy, Columbus, Ga 31917

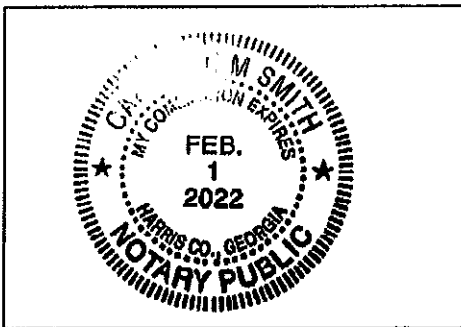
Phone: 706-299-9409

Signature: Ryan Foster

Date: 5/7/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018, and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal,



SEAL

My commission expires 02/01/2022

Filter Strip, Restored Riparian Buffer and Level Spreader 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:

- Immediately after the filter strip is established, any newly planted vegetation will be watered twice weekly if needed until the plants become established (commonly six weeks).
- Once a year, the filter strip will be reseeded to maintain a dense growth of vegetation
- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the vegetation.
- Two to three times a year, grass filter strips will be mowed and the clippings harvested to promote the growth of thick vegetation with optimum pollutant removal efficiency. Turf grass should not be cut shorter than 3 to 5 inches and may be allowed to grow as tall as 12 inches depending on aesthetic requirements (NIPC, 1993). Forested filter strips do not require this type of maintenance.
- Once a year, the soil will be aerated if necessary.
- Once a year, soil pH will be tested and lime will be added if necessary.

After the filter strip is established, it will be inspected **quarterly 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 filter strip system	Trash/debris is present.	Remove the trash/debris.
The flow splitter device (if applicable)	The flow splitter device is clogged.	Unclog the conveyance and dispose of any sediment off-site.
	The flow splitter device is damaged.	Make any necessary repairs or replace if damage is too large for repair.

BMP element:	Potential problem:	How I will remediate the problem:
The swale and the level lip	The swale is clogged with sediment.	Remove the sediment and dispose of it off-site.
	The level lip is cracked, settled, undercut, eroded or otherwise damaged.	Repair or replace lip.
	There is erosion around the end of the level spreader that shows stormwater has bypassed it.	Regrade the soil to create a berm that is higher than the level lip, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	Trees or shrubs have begun to grow on the swale or just downslope of the level lip.	Remove them.
The bypass channel	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then reestablish proper erosion control.
	Turf reinforcement is damaged or ripap is rolling downhill.	Study the site to see if a larger bypass channel is needed (enlarge if necessary). After this, reestablish the erosion control material.
The filter strip	Grass is too short or too long (if applicable).	Maintain grass at a height of approximately three to six inches.
	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.
	Sediment is building up on the filter strip.	Remove the sediment and restabilize the soil with vegetation if necessary. Provide lime and a one-time fertilizer application.
	Plants are desiccated.	Provide additional irrigation and fertilizer as needed.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application.
	Nuisance vegetation is choking out desirable species.	Remove vegetation by hand if possible. If pesticide is used, do not allow it to get into the receiving water.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the NC Division of Water Quality local Regional Office, or the 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: Amberleigh Shores Ph II

BMP drainage basin number: 1

Print name: Ryan Foster for Amberleigh Shores, II, LLC

Title: Sr. VP

Address: 900 Brookstone Centre Pkwy, Columbus, Ga 31917

Phone: 706-243-9403

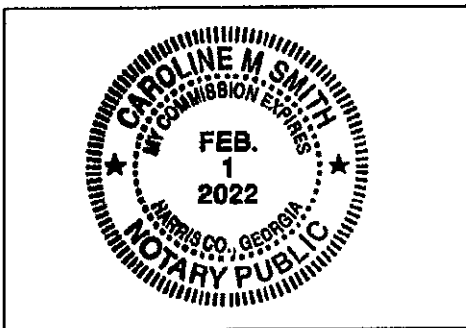
Signature: Ryan Foster

Date: 5/7/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018, and acknowledge the due execution of the forgoing filter strip, riparian buffer, and/or level spreader maintenance requirements.

Witness my hand and official seal,



SEAL

My commission expires 02/01/2022

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

BMP Drainage Basin #: _____

Wet Detention 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.

The wet detention basin system is defined as the wet detention basin, pretreatment including forebays and the vegetated filter if one is provided.

This system (check one):

does does not incorporate a vegetated filter at the outlet.

This system (check one):

does does not incorporate pretreatment other than a forebay.

Important maintenance procedures:

- Immediately after the wet detention basin is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
- No portion of the wet detention pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.
- Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet detention basin.
- If the basin must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized to the maximum extent practical.
- Once a year, a dam safety expert should inspect the embankment.

After the wet detention pond is established, it should be inspected **once a month and within 24 hours after every storm event greater than 1.5 inches**. Records of operation and maintenance should be kept in a known set location and must 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 side slopes of the wet detention 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.
	Vegetation is too short or too long.	Maintain vegetation at a height of approximately six inches.

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

BMP element:	Potential problem:	How I will remediate the problem:
The inlet device: pipe or swale	The pipe is clogged.	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged.	Replace the pipe.
	Erosion is occurring in the swale.	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.
The forebay	Sediment has accumulated to a depth greater than the original design depth for sediment storage.	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.	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 pesticide is used, wipe it on the plants rather than spraying.
The vegetated shelf	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices
	The plant community and coverage is significantly (>25%) different from approved landscape plan.	Restore plant vegetation to approved condition. If landscape plan needs to be adjusted to specify vegetation more appropriate for site conditions, contact City Stormwater or Engineering Staff.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary.
The main treatment area	Sediment has accumulated to a depth greater than the original design sediment storage 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.

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

BMP element:	Potential problem:	How I will remediate the problem:
The main treatment area (continued)	Algal growth covers over 25% of the area.	Consult a professional to remove and control the algal growth.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
The embankment	Shrubs have started to grow on the embankment.	Remove shrubs immediately.
	Evidence of muskrat or beaver activity is present.	Use traps to remove muskrats and consult a professional to remove beavers.
	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.
	An annual inspection by an appropriate professional shows that the embankment needs repair. (if applicable)	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 local NC Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786.

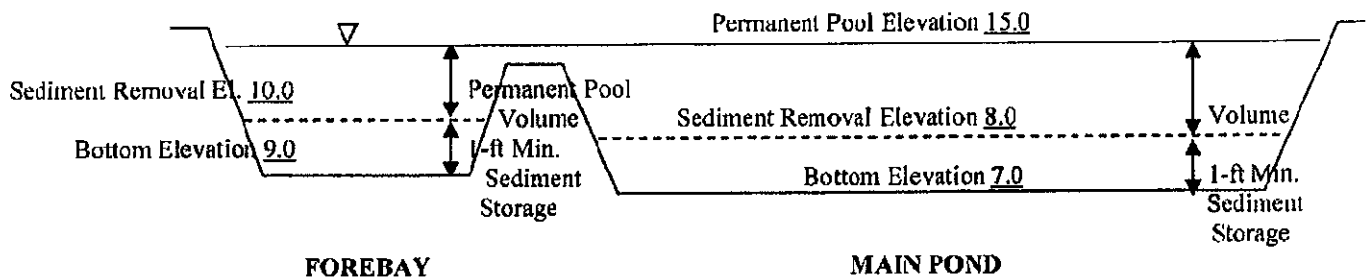
The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads 7.0 feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads 5.0 feet in the forebay, the sediment shall be removed.

BASIN DIAGRAM

(fill in the blanks)



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: Amberleigh Shores Ph II

BMP drainage basin number: 2

Print name: Ryan Foster for Amberleigh Shores II, LLC

Title: Sr. VP

Address: 900 Brookstone Centre Pkwy, Columbus, Ga 31917

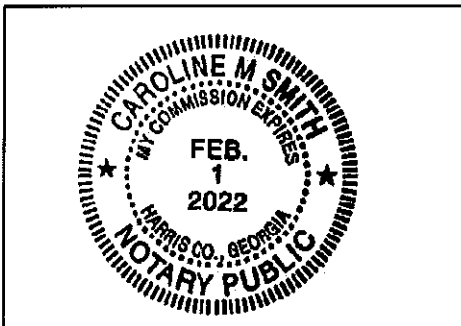
Phone: 706-293-9403

Signature: [Handwritten Signature]

Date: 5/7/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018, and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal,



SEAL

My commission expires 02/01/2022

Filter Strip, Restored Riparian Buffer and Level Spreader 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:

- Immediately after the filter strip is established, any newly planted vegetation will be watered twice weekly if needed until the plants become established (commonly six weeks).
- Once a year, the filter strip will be reseeded to maintain a dense growth of vegetation
- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the vegetation.
- Two to three times a year, grass filter strips will be mowed and the clippings harvested to promote the growth of thick vegetation with optimum pollutant removal efficiency. Turf grass should not be cut shorter than 3 to 5 inches and may be allowed to grow as tall as 12 inches depending on aesthetic requirements (NIPC, 1993). Forested filter strips do not require this type of maintenance.
- Once a year, the soil will be aerated if necessary.
- Once a year, soil pH will be tested and lime will be added if necessary.

After the filter strip is established, it will be inspected **quarterly 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 filter strip system	Trash/debris is present.	Remove the trash/debris.
The flow splitter device (if applicable)	The flow splitter device is clogged.	Unclog the conveyance and dispose of any sediment off-site.
	The flow splitter device is damaged.	Make any necessary repairs or replace if damage is too large for repair.

BMP element:	Potential problem:	How I will remediate the problem:
The swale and the level lip	The swale is clogged with sediment.	Remove the sediment and dispose of it off-site.
	The level lip is cracked, settled, undercut, eroded or otherwise damaged.	Repair or replace lip.
	There is erosion around the end of the level spreader that shows stormwater has bypassed it.	Regrade the soil to create a berm that is higher than the level lip, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	Trees or shrubs have begun to grow on the swale or just downslope of the level lip.	Remove them.
The bypass channel	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then reestablish proper erosion control.
	Turf reinforcement is damaged or ripap is rolling downhill.	Study the site to see if a larger bypass channel is needed (enlarge if necessary). After this, reestablish the erosion control material.
The filter strip	Grass is too short or too long (if applicable).	Maintain grass at a height of approximately three to six inches.
	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.
	Sediment is building up on the filter strip.	Remove the sediment and restabilize the soil with vegetation if necessary. Provide lime and a one-time fertilizer application.
	Plants are desiccated.	Provide additional irrigation and fertilizer as needed.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application.
	Nuisance vegetation is choking out desirable species.	Remove vegetation by hand if possible. If pesticide is used, do not allow it to get into the receiving water.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the NC Division of Water Quality local Regional Office, or the 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: Amberleigh Shores Ph II

BMP drainage basin number: 2

Print name: Ryan Foster for Amberleigh Shores II, LLC

Title: Sec. VP

Address: 900 Brookstone Centre Pkwy, Columbus, Ga 31917

Phone: 706-243-9403

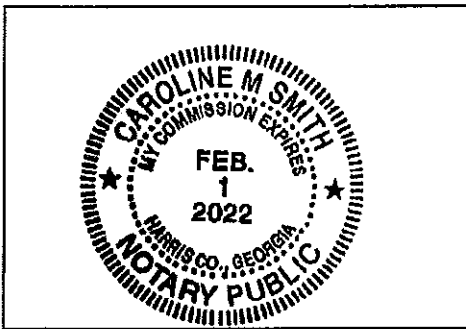
Signature: Ryan Foster

Date: 5/7/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018, and acknowledge the due execution of the forgoing filter strip, riparian buffer, and/or level spreader maintenance requirements.

Witness my hand and official seal,



SEAL

My commission expires 02/01/2022

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.

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: Amberleigh Shores Ph

II

BMP drainage basin number: 3

Print name: Ryan Foster for Amberleigh Shores II, LLC

Title: Sr. VD

Address: 900 Brookstone Centre Pkwy, Columbus, Ga 31917

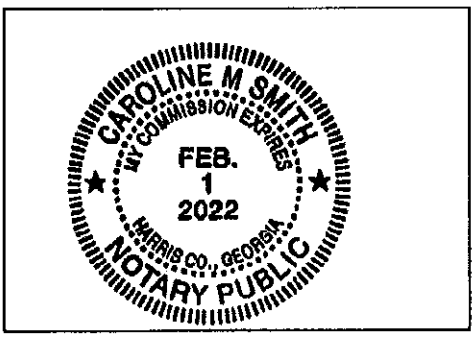
Phone: 706-243-9403

Signature: [Handwritten Signature]

Date: 5/7/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 7th day of May, 2018, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements. Witness my hand and official seal,



SEAL

My commission expires 02/01/2022

Permeable Pavement 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 operation and maintenance procedures:

- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the permeable pavement.
- The area around the perimeter of the permeable pavement will be stabilized and mowed, with clippings removed.
- Any weeds that grow in the permeable pavement will be sprayed with pesticide immediately. Weeds will not be pulled, since this could damage the fill media.
- Once a year, the permeable pavement surface will be vacuum swept.
- At no time shall wet sweeping (moistening followed by sweeping) be allowed as a means of maintenance.
- There shall be no repair or treatment of Permeable Pavement surfaces with other types of pavement surfaces. All repairs to Permeable Pavement surfaces must be accomplished utilizing permeable pavement which meets the original pavement specifications.
- Concentrated runoff from roof drains, piping, swales or other point sources, directly onto the permeable pavement surface shall not be allowed. These areas must be diverted away from the permeable pavement.

Initial Inspection: Permeable Pavements shall be inspected monthly for the first three months for the following:

BMP element:	Potential problem:	How to remediate the problem:
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies have formed.	In the event that rutting or failure of the groundcover occurs, the eroded area shall be repaired immediately and permanent groundcover re-established. Appropriate temporary Erosion Control measures (such as silt fence) shall be installed in the affected area during the establishment of permanent groundcover, and any impacted area of permeable pavement is to be cleaned via vacuum sweeping.
The surface of the permeable pavement	Rutting / uneven settlement	This indicates inadequate compaction of the pavement base / sub-base. If rutting or uneven settlement on the order of 1/2 inch or greater occurs, permeable pavement shall be removed and base / sub-base re-compacted, smoothed, and permeable pavement shall then be re-installed. Base and sub-base compaction shall be monitored by a licensed geotechnical engineer to ensure that infiltration capacity of base and sub-base are not compromised by compaction and smoothing processes.
	The pavement does not dewater between storms, or water is running off.	Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional.

The permeable pavement 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 to remediate the problem:
The perimeter of the permeable pavement	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.
	Vegetation is too short or too long.	Maintain vegetation at a height of 3 to 6 inches (remove clippings).
The surface of the permeable pavement	Trash/debris is present.	Remove the trash/debris.
	Weeds are growing on the surface of the permeable pavement.	Do not pull the weeds (may pull out media as well). Spray them with pesticide.
	Sediment is present on the surface.	Vacuum sweep the pavement.
	The structure is deteriorating or damaged.	Consult an appropriate professional. Damaged areas of the pavement shall be removed and repaired.
	The pavement does not dewater between storms.	Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional. Permanently clogged pavement shall be removed and repaired.

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 City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: Amberleigh Shores Ph II

BMP drainage area or lot number: 4

Print name: Ryan Foster for Amberleigh Shores II, LLC

Title: Sr. UP

Address: 900 Brookstone Centre Pkwy, Columbus, GA 31917

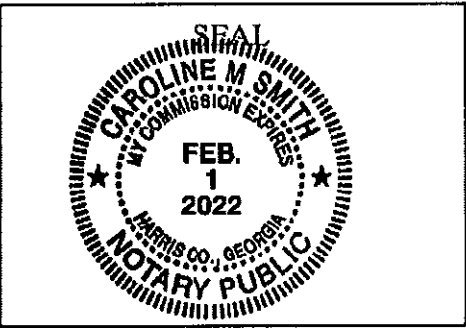
Phone: 706-243-9403

Signature: [Handwritten Signature]

Date: 5/2/18

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, Caroline M. Smith, a Notary Public for the State of Georgia, County of Harris, do hereby certify that Ryan Foster personally appeared before me this 2nd day of May, 2018, and acknowledge the due execution of the forgoing permeable pavement maintenance requirements. Witness my hand and official seal,



My commission expires 02/01/2022