

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: **College Acres Development, LLC**
PROJECT: **Cottages at College Acres**
ADDRESS: **Project Address**
PERMIT #: **2019050**
DATE: **August 1, 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 August 1, 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 August 1, 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.



Public Services

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

5. The permittee shall submit a revised stormwater management application packet to the City of Wilmington and shall have received approval prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:
 - a. Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.
 - b. Redesign or addition to the approved amount of built-upon area or to the drainage area.
 - c. Further subdivision, acquisition, lease or sale of any part of the project area.
 - d. Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.
 - e. Construction of any permitted future areas shown on the approved plans.
6. A copy of the approved plans and specifications shall be maintained on file by the Permittee.
7. During construction, erosion shall be kept to a minimum and any eroded areas of the system will be repaired immediately.
8. If the stormwater system was used as an Erosion Control device, it must be restored to design condition prior to operation as a stormwater treatment device, and prior to issuance of any certificate of occupancy for the project.
9. All areas must be maintained in a permanently stabilized condition. If vegetated, permanent seeding requirements must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual unless an alternative is specified and approved by the City of Wilmington.
10. All stormwater treatment systems as well as access to nearest right-of-way must be located in recorded easements.
11. 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.
12. The stormwater management system shall be constructed in its entirety, vegetated and operational for its intended use prior to the construction of any built-upon surface unless prior approval is obtained. City Staff must be notified of any deviation prior to construction of the built-upon surface. Any deviation request shall include justification and must propose an alternative timeline or construction sequence. Notification shall not constitute approval. Any alternative timeline approved by City staff shall become an enforceable component of this permit.



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13. 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.
14. 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.
15. 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.
16. 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.
17. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to enforcement action by the City of Wilmington, in accordance with Sections 18-52 and 18-53 and any other applicable section of the Land Development Code.



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18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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 1st day of August, 2019.



for Sterling Cheatham, City Manager
City of Wilmington

RECEIVED

JUL - 9 2019

ENGINEERING
unless noted otherwise



Public Services
Engineering
414 Chestnut St, Suite 200
Wilmington, NC 28401
910 341-7807
910 341-5881 fax
wilmingtonnc.gov
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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.):

Cottages at College Acres

2. Location of Project (street address):

4738, 4730, 4726, 4722, 4716 & 4718 College Acres Drive

City: Wilmington County: New Hanover Zip: 28403

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

The site is located ~0.18 miles from the intersection of College Road (132) and Collage Acres Drive.

The site is located on the right hand side of Collage Acres Drive.

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: College Acres Development, LLC

Signing Official & Title: David DeSpain - Manager

- a. Contact information for Applicant / Signing Official:

Street Address: 11240 McDowell Shortcut

City: Murrells Inlet State: SC Zip: 29576

Phone: 843-237-4000 Fax: _____ Email: ddespain@carolinadevt.com

Mailing Address (if different than physical address): Same as Above

City: _____ State: _____ Zip: _____

- b. Please check the appropriate box. The applicant listed above is:

- The property owner (Skip to item 3) *7/24/19 RAC*
 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: College Acres Development, LLC

Signing Official & Title: David DeSpain - Manager

- a. Contact information for Property Owner:

Street Address: 11240 McDowell Shortcut

City: Murrells Inlet State: SC Zip: 29576

Phone: 843-237-4000 Fax: _____ Email: ddespain@carolinadevt.com

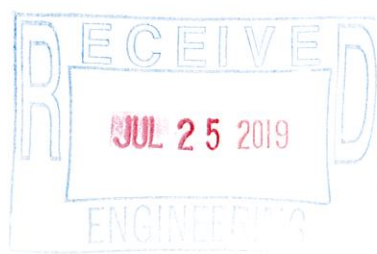
Mailing Address (if different than physical address): _____

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 stormwater runoff will be collected via stormwater piping and will be discharged into a stormwater pond and underground infiltration piping.

2. Total Property Area: 154,638 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: 154,638 square feet.

6. Existing Impervious Surface within Property Area: 14,990 square feet

7. Existing Impervious Surface to be Removed/Demolished: 14,990 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	39,600
Impervious Pavement	40,900
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	12,460
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	
Future Development	
Total Onsite Newly Constructed Impervious Surface	92,960

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 92,960 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 60 %

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

Impervious Pavement	1,140
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	3,940
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Total Offsite Newly Constructed Impervious Surface	5,080

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 98040 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 # 3
Receiving Stream Name	Bradley Creek	Bradley Creek	Bradley Creek
Receiving Stream Index Number	18-87-24-4-(1)	18-87-24-4-(1)	18-87-24-4-(1)
Stream Classification	Sc;HQW	Sc;HQW	Sc;HQW
Total Drainage Area (sf)	53940	28120	39540
On-Site Drainage Area (sf)	53940	28120	39540
Off-Site Drainage Area (sf)			
Total Impervious Area (sf)	43360	21670	27930
Buildings/Lots (sf)	19500	9030	11070
Impervious Pavement (sf)	18700	8900	13300
Pervious Pavement, % credit (sf)			
Impervious Sidewalks (sf)	5160	3740	3560
Pervious Sidewalks, % credit (sf)			
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Percent Impervious Area (%)	80.4%	77.06%	70.64%

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

~~Public ROW Drives and Sidewalks and additional onsite walkways draining to ROW.~~
7/24/19 by RAC

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: Branch Smith, PE

Consulting Firm: Paramounte Engineering, Inc.

a. Contact information for consultant listed above:

Mailing Address: 122 Cinema Drive

City: Wilmington State: NC Zip: 28403

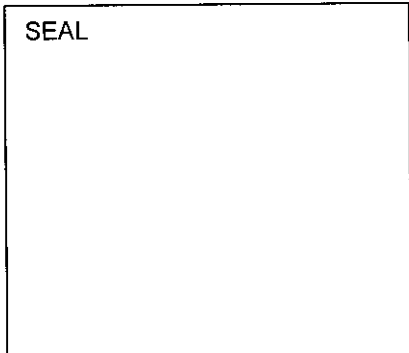
Phone: 910-791-6707 Fax: 910-791-6760 Email: bsmith@paramounte-eng.com

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) see L.O.C., 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: _____



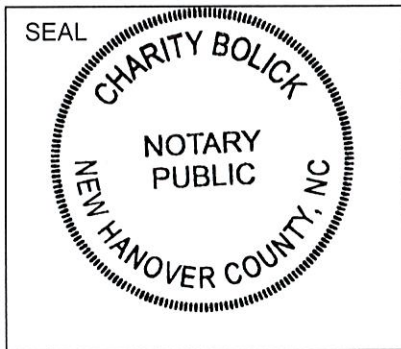
I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this day of _____, _____, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

My commission expires: _____

VIII. APPLICANT'S CERTIFICATION

I, (print or type name of person listed in Contact Information, item 1) David DeSpain 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: *David DeSpain* Date: 5-1-19



I, Charity Bolick, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that David DeSpain personally appeared before me this day of 5/01/2019, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,
Charity Bolick
My commission expires: 02/25/2024

SUPPLEMENT-EZ COVER PAGE

FORMS LOADED

PROJECT INFORMATION		
1	Project Name	Cottages at Cottage Acres
2	Project Area (ac)	3.54
3	Coastal Wetland Area (ac)	0
4	Surface Water Area (ac)	0
5	Is this project High or Low Density?	High
6	Does this project use an off-site SCM?	No

COMPLIANCE WITH 02H .1003(4)		
7	Width of vegetated setbacks provided (feet)	-
8	Will the vegetated setback remain vegetated?	Yes
9	Is BUA other than as listed in .1003(4)(c-d) out of the setback?	Yes
10	Is streambank stabilization proposed on this project?	No

NUMBER AND TYPE OF SCMs:		
11	Infiltration System	2
12	Bioretention Cell	0
13	Wet Pond	1
14	Stormwater Wetland	0
15	Permeable Pavement	0
16	Sand Filter	0
17	Rainwater Harvesting (RWH)	0
18	Green Roof	0
19	Level Spreader-Filter Strip (LS-FS)	0
20	Disconnected Impervious Surface (DIS)	0
21	Treatment Swale	0
22	Dry Pond	0
23	StormFilter	0
24	Silva Cell	0
25	Bayfilter	0
26	Filtterra	0

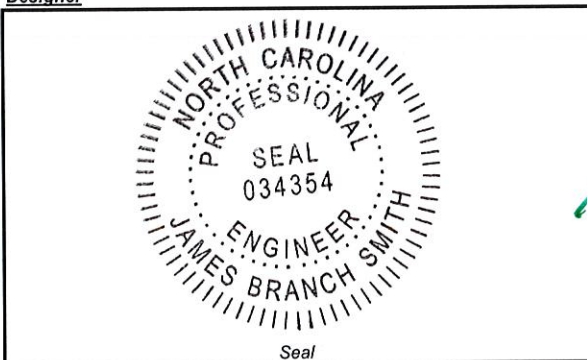
FORMS LOADED

DESIGNER CERTIFICATION		
27	Name and Title:	J. Branch Smith, PE
28	Organization:	Paramounte Engineering
29	Street address:	122 Cinema Drive
30	City, State, Zip:	Wilmington NC 28403
31	Phone number(s):	910-791-6707
32	Email:	bsmith@paramounte-eng.com

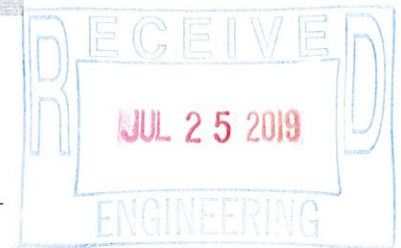
Certification Statement:

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.

Designer



J. Branch Smith
Signature of Designer



7.25.19
Date

DRAINAGE AREAS

1	Is this a high density project?	Yes
2	If so, number of drainage areas/SCMs	3
3	Is all/part of this project subject to previous rule versions?	No

FORMS LOADED

DRAINAGE AREA INFORMATION		Entire Site	1	2	3
4	Type of SCM		Infiltration System	Infiltration System	Wet Pond
5	Total BUA in project (sq ft)	92960 sf	43360 sf	21670 sf	27930 sf
6	New BUA on subdivided lots (subject to permitting) (sq ft)				
7	New BUA outside of subdivided lots (subject to permitting) (sf)				
8	Offsite - total area (sq ft)				
9	Offsite BUA (sq ft)				
10	Breakdown of new BUA outside subdivided lots:				
	- Parking (sq ft)	40900 sf	18700 sf	8900 sf	13300 sf
	- Sidewalk (sq ft)	12460 sf	5160 sf	3740 sf	3560 sf
	- Roof (sq ft)	39600 sf	19500 sf	9030 sf	11070 sf
	- Roadway (sq ft)				
	- Future (sq ft)				
	- Other, please specify in the comment box below (sq ft)				
11	New infiltrating permeable pavement on subdivided lots (sq ft)				
12	New infiltrating permeable pavement outside of subdivided lots (sq ft)				
13	Existing BUA that will remain (not subject to permitting) (sq ft)				
14	Existing BUA that is already permitted (sq ft)				
15	Existing BUA that will be removed (sq ft)				
16	Percent BUA		80%	77%	71%
17	Design storm (inches)		1.5 in	1.5 in	1.5 in
18	Design volume of SCM (cu ft)		5451 cf	2695 cf	8442 cf
19	Calculation method for design volume		Simple	Simple	Simple

ADDITIONAL INFORMATION	
20	Please use this space to provide any additional information about the drainage area(s):

INFILTRATION SYSTEM

1	Drainage area number	1	2
2	Design volume of SCM (cu ft)	5451 cf	2695 cf
GENERAL MDC FROM 02H .1050			
3	Is the SCM sized to treat the SW from all surfaces at build-out?	No	No
4	Is the SCM located away from contaminated soils?	Yes	Yes
5	What are the side slopes of the SCM (H:V)?	1:1	1:1
6	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	No
7	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	Yes
8	Is there an overflow or bypass for inflow volume in excess of the design volume?	Yes	Yes
9	What is the method for dewatering the SCM for maintenance?	Pump (preferred)	Pump (preferred)
10	If applicable, will the SCM be cleaned out after construction?	Yes	Yes
11	Does the maintenance access comply with General MDC (8)?	Yes	Yes
12	Does the drainage easement comply with General MDC (9)?		
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?		
14	Is there an O&M Agreement that complies with General MDC (11)?	Yes	Yes
15	Is there an O&M Plan that complies with General MDC (12)?	Yes	Yes
16	Does the SCM follow the device specific MDC?	Yes	Yes
17	Was the SCM designed by an NC licensed professional?	Yes	Yes
INFILTRATION SYSTEM MDC FROM 02H .1051			
18	Proposed slope of the subgrade surface (%)	0%	0%
19	Are terraces or baffles provided?	No	No
20	Type of pretreatment:	Other	Other
Soils Data			
21	Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	Yes
22	SHWT elevation (fmsl)	36.67	35.50
23	Depth to SHWT per soils report (in)	52.00	42.00
24	Ground elevation at boring in soils report (fmsl)	41.00	39.00
25	Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	No	No
26	Soil infiltration rate (in/hr)	8.00	8.00
27	Factor of safety (FS) (2 is recommended):	2.00	2.00
Elevations			
29	Bottom elevation (fmsl)	38.70 ft	37.50 ft
30	Storage elevation (fmsl)	40.2 ft	39.8 ft
31	Bypass elevation (fmsl)	41.0 ft	39.8 ft
For Basins Only			
32	Bottom surface area, ft ² :		
33	Storage elevation surface area (ft ²)		
For Trenches Only			
34	Length (ft)	207.7 ft	145.61 ft
35	Width (ft)	28.17 ft	14.83 ft
36	Perforated pipe diameter, if applicable (inches)	16 X 34 Arch	16 X 34 Arch
37	Number of laterals	8	4
38	Total length of perforated piping	1664 ft	584 ft
39	Stone type, if applicable	washed	washed
40	Stone void ratio (%)	40%	40%
41	Is stone free of fines?	Yes	Yes
42	Is the stone wrapped in geotextile fabric?	Yes	Yes
43	Has at least one infiltration port been provided?	Yes	Yes
Volumes/Drawdown			
44	Design volume of SCM (cu ft)	5451 cf	2695 cf
45	Time to drawdown (hours)	2.5 hrs	3.3 hrs
ADDITIONAL INFORMATION			
46	Please use this space to provide any additional information about the infiltration system(s):		
	Note: Drawdown Item #45 is calculated based on 1/2 the system areas and not the entire trench system areas for IT-1 and IT-2.		

WET POND

1	Drainage area number	3
2	Design volume of SCM (cu ft)	8442 cf
GENERAL MDC FROM 02H .1050		
3	Is the SCM sized to treat the SW from all surfaces at build-out?	No
4	Is the SCM located away from contaminated soils?	Yes
5	What are the side slopes of the SCM (H:V)?	1:1
6	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	Yes
7	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes
8	Is there an overflow or bypass for inflow volume in excess of the design volume?	Yes
9	What is the method for dewatering the SCM for maintenance?	Pump (preferred)
10	If applicable, will the SCM be cleaned out after construction?	Yes
11	Does the maintenance access comply with General MDC (8)?	Yes
12	Does the drainage easement comply with General MDC (9)?	Yes
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?	
14	Is there an O&M Agreement that complies with General MDC (11)?	Yes
15	Is there an O&M Plan that complies with General MDC (12)?	Yes
16	Does the SCM follow the device specific MDC?	Yes
17	Was the SCM designed by an NC licensed professional?	Yes
WET POND MDC FROM 02H .1053		
18	Method used	SA/DA
19	Has a stage/storage table been provided in the calculations?	Yes
20	Elevation of the excavated main pool depth (bottom of sediment removal) (fmsl)	30.00
21	Elevation of the main pool bottom-(top of sediment removal) (fmsl)	31.00
22	Elevation of the bottom of the vegetated shelf (fmsl)	35.00
23	Elevation of the permanent pool (fmsl)	36.00
24	Elevation of the top of the vegetated shelf (fmsl)	36.00
25	Elevation of the temporary pool (fmsl)	38.00
26	Surface area of the main permanent pool (square feet)	4,221
27	Volume of the main permanent pool (cubic feet)	8211 cf
28	Average depth of the main pool (feet)	3.60 ft
29	Average depth equation used	Equation 3
30	If using equation 3, main pool perimeter (feet)	177.0 ft
31	If using equation 3, width of submerged veg. shelf (feet)	6.0 ft
32	Volume of the forebay (cubic feet)	1378 cf
33	Is this 15-20% of the volume in the main pool?	Yes
34	Clean-out depth for forebay (inches)	36 in
35	Design volume of SCM (cu ft)	8442 cf
36	Is the outlet an orifice or a weir?	Orifice
37	If orifice, orifice diameter (inches)	1.00 in
38	If weir, weir height (inches)	
39	If weir, weir length (inches)	
40	Drawdown time for the temporary pool (days)	4.6
41	Are the inlet(s) and outlet located in a manner that avoids short-circuiting?	Yes
42	Are berms or baffles provided to improve the flow path?	No
43	Depth of forebay at entrance (inches)	48 in
44	Depth of forebay at exit (inches)	12 in
45	Does water flow out of the forebay in a non-erosive manner?	Yes
46	Width of the vegetated shelf (feet)	6 ft
47	Slope of vegetated shelf (H:V)	6:1
48	Does the orifice drawdown from below the top surface of the permanent pool?	Yes
49	Does the pond minimize impacts to the receiving channel from the 1-yr, 24-hr storm?	Yes
50	Are fountains proposed? (If Y, please provide documentation that MDC(9) is met.)	No
51	Is a trash rack or other device provided to protect the outlet system?	Yes
52	Are the dam and embankment planted in non-clumping turf grass?	Yes
53	Species of turf that will be used on the dam and embankment	Bermuda/St. Aug. Sod
54	Has a planting plan been provided for the vegetated shelf?	Yes
ADDITIONAL INFORMATION		
55	Please use this space to provide any additional information about the wet pond(s):	

Operation & Maintenance Agreement

Project Name: Cottages @ College Acres
Project Location: College Acres Drive, Wilmington, NC

Cover Page

Maintenance records shall be kept on the following BMP(s). This maintenance record shall 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 pollutant removal efficiency of the BMP(s).

The BMP(s) on this project include (check all that apply & corresponding O&M tables will be added automatically):

Bioretention Cell	Quantity:		Location(s):
Dry Detention Basin	Quantity:		Location(s):
Grassed Swale	Quantity:		Location(s):
Green Roof	Quantity:		Location(s):
Infiltration Basin	Quantity:		Location(s):
Infiltration Trench	Quantity:	2	Location(s): Parking Lot
Level Spreader/VFS	Quantity:		Location(s):
Permeable Pavement	Quantity:		Location(s):
Proprietary System	Quantity:		Location(s):
Rainwater Harvesting	Quantity:		Location(s):
Sand Filter	Quantity:		Location(s):
Stormwater Wetland	Quantity:		Location(s):
Wet Detention Basin	Quantity:	1	Location(s): Western Side of Property
Disconnected Impervious Area	Present:	No	Location(s):
User Defined BMP	Present:	No	Location(s):

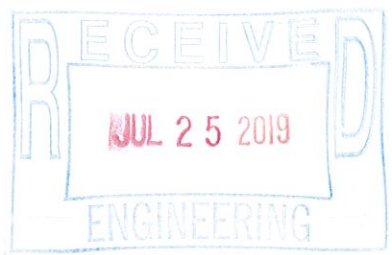
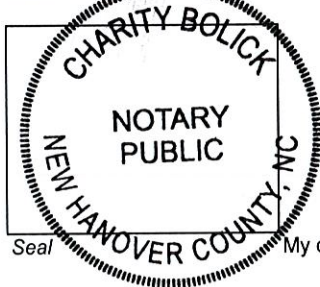
I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed for each BMP above, and attached O&M tables. I agree to notify NCDENR of any problems with the system or prior to any changes to the system or responsible party.

* Responsible Party:	College Acres Development, LLC
Title & Organization:	David DeSpain, Mgr
Street address:	11240 McDowell Shortcut
City, state, zip:	Murrells Inlet, SC 29576
Phone number(s):	843-237-4000
Email:	ddespain@carolinadevt.com

Signature: *[Handwritten Signature]* Date: 7/25/19

I, Charity Bolick, a Notary Public for the State of North Carolina
 County of New Hanover, do hereby certify that David DeSpain
 personally appeared before me this 25th day of July 2019 and
 acknowledge the due execution of the Operations and Maintenance Agreement.

Witness my hand and official seal, *[Handwritten Signature]*



Seal My commission expires 02-25-2024

Infiltration System Maintenance Requirements

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 shall be inspected **once a quarter and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)**. Records of operation and maintenance shall be kept in a known set location and shall 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 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.
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 local NC Department of Environment and Natural Resources Regional Office.

Wet Detention Pond Maintenance Requirements

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

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 1.0 inches (or 1.5 inches if in a Coastal County)**. 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 perimeter of the BMP	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.
The inlet device	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.
	Stone verge is clogged or covered in sediment (if applicable).	Remove sediment and replace with clean stone.
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
	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.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.

Wet Detention Pond Maintenance Requirements (Continued)

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.
	Algal growth covers over 50% of the area.	Consult a professional to remove and control the algal growth.
	Cattails, phragmites or other invasive plants cover 50% of the basin surface.	Remove the plants by wiping them with pesticide (do not spray).
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 Department of Environment and Natural Resources Regional Office.
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.		

Wet Detention Pond Design Summary

Wet Pond Diagram

WET POND ID		FOREBAY		MAIN POND	
DA 3 - Pond		Permanent Pool El.	36	Permanent Pool El.	36
		Temporary Pool El:	38	Temporary Pool El:	38
Pretreatment other than forebay?	No	Clean Out Depth:	3	Clean Out Depth:	5
Has Veg. Filter?	No	Sediment Removal El:	33	Sediment Removal El:	31
		Bottom Elevation:	32	Bottom Elevation:	30