

**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: **The Cottages at Bradley Creek, LLC**  
PROJECT: **The Cottages at Bradley Creek**  
ADDRESS: **321 Hooker Road**  
PERMIT #: **2021039**  
DATE: **9/7/2021**

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 9/7/2031 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 8/25/2021.
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.



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.



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.



**Public Services**

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

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 7th day of September, 2021

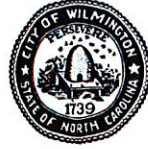
A handwritten signature in blue ink, appearing to read 'E. Caudle'.

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for Tony Caudle, Interim City Manager  
City of Wilmington

**RECEIVED**

By waltonj at 10:03 am, Jul 15, 2021



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

**STORMWATER MANAGEMENT PERMIT APPLICATION FORM**  
(Form SWP 2.3)

**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.):

The Cottages at Bradley Creek

2. Location of Project (street address):

321 Hooker Road

City: Wilmington County: New Hanover Zip: 28403

**II. PERMIT INFORMATION**

1. Specify the type of project (check one):  Low Density  High Density  
 Offsite Stormwater System  Drainage Plan  Redevelopment  Other

If the project drains to an Offsite System, list the Stormwater Permit Number(s):

City of Wilmington: \_\_\_\_\_ State – NCDEQ/DEMLR: \_\_\_\_\_

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

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: \_\_\_\_\_ State – NCDEQ/DEMLR: \_\_\_\_\_

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

CAMA Major  Sedimentation/Erosion Control  404/401 Permit

**III. CONTACT INFORMATION**

1. Print Applicant / Signing Official's name and title (the developer, property owner, lessee, designated government official, individual, etc. who owns the project):

Applicant / Organization: The Cottages Bradley Creek, LLC

Signing Official & Title: Marlena Edwards - Manager

a. Contact information for Applicant / Signing Official:

Address: PO Box 64  
City: Wrightsville Beach State: NC Zip: 28480  
Phone: 910-452-1419 Email: CottagesBradleyCreek@gmail.com

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

- The property owner/Purchaser (Skip to item 3)  
 Lessee (Attach a copy of the lease agreement and complete items 2 and 2a below)  
 Developer (Complete items 2 and 2a below.)

2. Print Property Owner's name and title (if different from the applicant).

Property Owner / Organization: \_\_\_\_\_

Signing Official & Title: \_\_\_\_\_

a. Contact information for Property Owner:

Street Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Email: \_\_\_\_\_

3. (Optional) Other Contact name and title (such as a construction supervisor) who would like to be copied on all correspondence:

Other Contact Person / Organization: \_\_\_\_\_

Signing Official & Title: \_\_\_\_\_

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

Street Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Email: \_\_\_\_\_

4. Agent Authorization: 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: Garry S. Pape, P.E.

Consulting Firm: GSP Consulting, PLLC.

a. Contact information for consultant listed above:

Mailing Address: 6626-C Gordon Road  
City: Wilmington State: NC Zip: 28411  
Phone: 910-442-7870 Email: gpape@gsp-consulting.com

**IV. PROJECT INFORMATION**

1. Total Property Area: 467,344 square feet
2. Total Coastal Wetlands Area: 0 square feet
3. Total Surface Water Area: 0 square feet
4. Total Property Area (1) – Total Coastal Wetlands Area (2) – Total Surface Water Area (3) = Total Project Area: 467,344 square feet.
5. Existing Impervious Surface within Project Area: 111,888 square feet
6. Existing Impervious Surface to be Removed/Demolished: 111,888 square feet
7. Existing Impervious Surface to Remain: 0 square feet
8. Total Onsite (within property boundary) Newly Constructed Impervious Surface (in square feet):

Buildings/Lots	168,000
Impervious Pavement	59,283
Pervious Pavement (total area / adjusted area w credit applied)	/
Impervious Sidewalks	19,766
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other (Describe)	
Future Development	
<b>Total Onsite Newly Constructed Impervious Surface</b>	<b>247,049</b>

9. Total Onsite Impervious Surface  
(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) 247,049 square feet
10. Net Change in Onsite Impervious Surface (+ for net increase, - for net decrease) +135161 square feet
11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 52.9 %
12. Total Offsite Newly Constructed Impervious Area (in square feet):

Impervious Pavement	1,980
Pervious Pavement (total area / adjusted area w credit applied)	/
Impervious Sidewalks	2,535
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other (Describe)	
<b>Total Offsite Newly Constructed Impervious Surface</b>	<b>4,515</b>

13. Complete the following information for each Stormwater SCM drainage area. Low Density and Drainage Plan projects (with no permeable pavements) may omit this section and skip to Section V.

Basin Information	Infiltration Basin SCM # 1	Infiltration Basin SCM # 2	Type of SCM SCM #
Receiving Stream Name	Bradley Creek	Bradley Creek	
Receiving Stream Index Number	18-87-24-4	18-87-24-4	
Stream Classification	SC; HQW	SC; HQW	
Total Drainage Area (sf)	299,053	108,479	
On-Site Drainage Area (sf)	299,053	108,479	
Off-Site Drainage Area (sf)			
Buildings/Lots (sf)	124,500	43,500	
Impervious Pavement (sf)	43,932	15,351	
Pervious Pavement (total / adjusted) (sf)	/	/	/
Impervious Sidewalks (sf)	15,410	4,356	
Pervious Sidewalks (total / adjusted) (sf)	/	/	/
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
<b>Total Impervious Area (sf)</b>	183,842	63,207	
<b>Percent Impervious Area (%)</b>	61.5	58.3	

Basin Information	Type of SCM SCM #	Type of SCM SCM #	Type of SCM SCM #
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)			
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Buildings/Lots (sf)			
Impervious Pavement (sf)			
Pervious Pavement (total / adjusted) (sf)	/	/	/
Impervious Sidewalks (sf)			
Pervious Sidewalks (total / adjusted) (sf)	/	/	/
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
<b>Total Impervious Area (sf)</b>			
<b>Percent Impervious Area (%)</b>			



**V. SUBMITTAL REQUIREMENTS**

Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed below. Copies of forms, deed restrictions, checklists as well as detailed instructions on how to complete this application form may be downloaded from the City of Wilmington Plan Review website below:

<https://www.wilmingtonnc.gov/departments/engineering/plan-review/stormwater-permits>

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

Please indicate that the following required information have been provided by initialing in the space provided for each item.

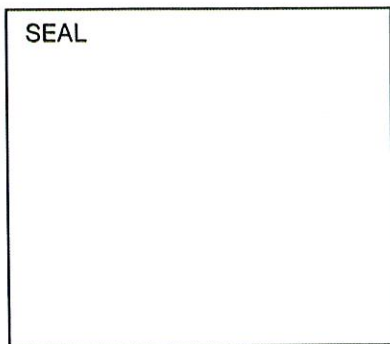
- |  | Initials  |
|--|-----------|
| 1. One completed Stormwater Management Permit Application Form.  | <u>AS</u> |
| 2. One completed Supplement Form for each SCM proposed (signed, sealed and dated).   | <u>AS</u> |
| 3. One completed Operation & Maintenance agreement for each <u>type</u> of SCM.  | <u>AS</u> |
| 4. Proposed Deed Restrictions and Restrictive Covenants (for all subdivisions)   | <u>AS</u> |
| 5. Appropriate stormwater permit review fee.   | <u>AS</u> |
| 6. Minimum requirements identified on the Engineering Plan Review Checklist have been addressed.   | <u>AS</u> |
| 7. One set of calculations (sealed, signed and dated).   | <u>AS</u> |
| 8. A detailed narrative (one to two pages) describing the stormwater treatment/management system for the project.  | <u>AS</u> |
| 9. A USGS map identifying the site location. If the receiving stream is reported as class SA or the receiving stream drains to class SA waters within ½ mile of the site boundary, include the ½ mile radius on the map. | <u>AS</u> |
| 10. A copy of the soils report, if applicable. Must meet NCDEQ SCM Manual and MDC requirements for the type of SCM proposed. The report must include boring logs and a map of boring locations.                          | <u>AS</u> |
| 11. One full set of plans <u>folded to 8.5" x 14"</u> .  | <u>AS</u> |
| 12. A map delineating and labeling the drainage area for each SCM proposed.  | <u>AS</u> |
| 13. A map delineating and labeling the drainage area for each inlet and conveyance proposed.   | <u>AS</u> |
| 14. A digital copy of the entire submittal package (can be submitted via flash drive, CD, email, dropbox or other file sharing system).  | <u>AS</u> |

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

I, \_\_\_\_\_, certify that I own the property identified in this permit application, and thus give permission to \_\_\_\_\_ with \_\_\_\_\_ 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 \_\_\_\_\_ 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: \_\_\_\_\_



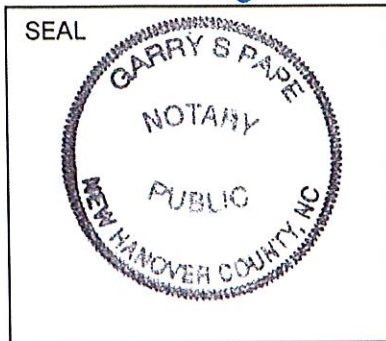
I, \_\_\_\_\_, a Notary Public for the State of \_\_\_\_\_, County of \_\_\_\_\_, do hereby certify that \_\_\_\_\_ personally appeared before me this day of \_\_\_\_\_, \_\_\_\_\_, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

My commission expires: \_\_\_\_\_

**VII. APPLICANT'S CERTIFICATION**

I, Marlene Edwards, 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 rules under the City's Comprehensive Stormwater Ordinance.

Signature: [Signature] Date: 3/2/21



I, Garry S. Pope, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that Marlene Edwards personally appeared before me this day of 2nd March, 2021, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

[Signature]  
My commission expires: April 13, 2025

**High Density Residential Subdivisions**  
**Deed Restrictions & Protective Covenances**

**RECEIVED**  
By waltonj at 9:12 am, May 17, 2021

In accordance with Article 14, Division III of the City of Wilmington Land Development Code, deed restrictions and protective covenants are required for High Density Residential Subdivisions where lots will be subdivided and sold and runoff will be treated in an engineered stormwater control facility. Deed restrictions and protective covenants are necessary to ensure that the development maintains a "built-upon" area consistent with the design criteria used to size the stormwater control facility.

Project Name: The Cottages at Bradley Creek

Owner / Developer: The Cottages Bradley Creek, LLC

1. *The following covenants are intended to ensure ongoing compliance with the City of Wilmington Stormwater Management Permit Number 2021039, as issued by the City of Wilmington/Engineering.*
2. *The City of Wilmington is made a beneficiary of these covenants to the extent necessary to maintain compliance with the stormwater management permit.*
3. *These covenants are to run with the land and be binding on all persons and parties claiming under them.*
4. *The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the City of Wilmington.*
5. *Alteration of the drainage as shown on the approved plan may not take place without the concurrence of the City of Wilmington.*
6. *The maximum allowable built-upon area per lot is 3,000 square feet. This allotted amount includes any built-upon area constructed within the lot property boundaries, and that portion of the right-of-way between the front lot line and the edge of the pavement. Built upon area includes, but is not limited to, structures, asphalt, concrete, compacted gravel, brick, stone, slate, coquina, and parking areas, but does not include raised open wood decking, washed gravel excluding fines, or the water surface of swimming pools. Note: sidewalk improvements allocated as right-of-way BUA shall not count against deeded lot restricted BUA.*

**OR, if the proposed built-upon areas per lot will vary, please REPLACE #6 above with the following:**

*The maximum built-upon area per lot, in square feet, is as listed below:*

<i>Lot #</i>	<i>BUA</i>	<i>Lot #</i>	<i>BUA</i>	<i>Lot #</i>	<i>BUA</i>	<i>Lot #</i>	<i>BUA*</i>
_____	_____	_____	_____	_____	_____	_____	_____

Check  Yes or  No if additional lot BUA information has been attached.

\* If additional space is needed please attach lot BUA spreadsheet.

*This allotted amount includes any built-upon area constructed within the lot property boundaries, and that portion of the right-of-way between the front lot line and the edge of the pavement. Built upon area includes, but is not limited to, structures, asphalt, concrete, compacted gravel, brick, stone, slate, coquina, and parking areas, but does not include raised open wood decking, washed gravel excluding fines, or the water surface of swimming pools. Note: sidewalk improvements allocated as right-of-way BUA shall not count against deeded lot restricted BUA.*

7. *All runoff from the built-upon areas on the lot must drain into the permitted system. This may be accomplished through a variety of means including roof drain gutters which drain to the street, grading the lot to drain toward the street, or grading perimeter swales to collect the lot runoff and directing them into a component of the stormwater collection system. Lots that will naturally drain into the system are not required to provide these additional measures.*

I acknowledge, affirm and agree by my signature below, that I will cause the following deed restrictions and covenants to be recorded prior to the sale of any lot:

Signature: 

Date: 3/2/21

Print Name: Marlena Edwards

# SUPPLEMENT-EZ COVER PAGE

**RECEIVED**  
By waltonj at 9:13 am, May 17, 2021

FORMS LOADED

PROJECT INFORMATION		
1	Project Name	The Cottages at Bradley Creek
2	Project Area (ac)	10.73
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)	N/A
8	Will the vegetated setback remain vegetated?	N/A
9	If BUA is proposed in the setback, does it meet NCAC 02H.1003(4)(c-d)?	N/A
10	Is streambank stabilization proposed on this project?	No

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

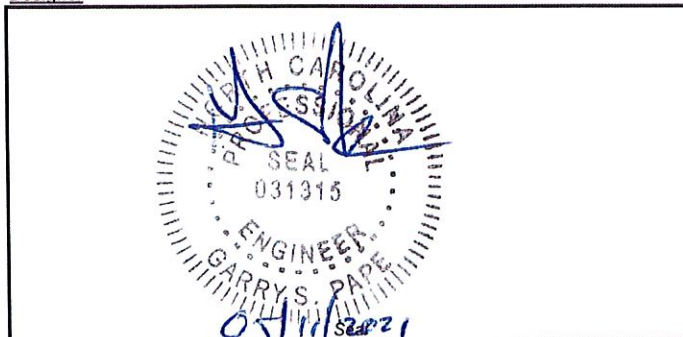
FORMS LOADED

DESIGNER CERTIFICATION		
27	Name and Title:	Garry S. Pape, P.E.
28	Organization:	GSP Consulting, PLLC.
29	Street address:	6626-C Gordon Road
30	City, State, Zip:	Wilmington, NC 28411
31	Phone number(s):	910-442-7870
32	Email:	gpape@gsp-consulting.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**



*(Handwritten Signature)*  
\_\_\_\_\_  
Signature of Designer

05/11/2021  
\_\_\_\_\_  
Date

# DRAINAGE AREAS

1	Is this a high density project?	Yes
2	If so, number of drainage areas/SCMs	2
3	Does this project have low density areas?	No
4	If so, number of low density drainage areas	0
5	Is all/part of this project subject to previous rule versions?	No

FORMS LOADED

DRAINAGE AREA INFORMATION		Entire Site	1	2
4	Type of SCM		Infiltration	Infiltration
5	Total drainage area (sq ft)	407532	299053	108479
6	Onsite drainage area (sq ft)	407532	299053	108479
7	Offsite drainage area (sq ft)			
8	Total BUA in project (sq ft)	247049	183842 sf	63207 sf
9	New BUA on subdivided lots (subject to permitting) (sq ft)	168000	124500 sf	43500 sf
10	New BUA not on subdivided lots (subject to permitting) (sf)	79049	59342 sf	19707 sf
11	Offsite BUA (sq ft)			
12	Breakdown of new BUA not on subdivided lots:			
	- Parking (sq ft)			
	- Sidewalk (sq ft)	19766	15410 sf	4356 sf
	- Roof (sq ft)			
	- Roadway (sq ft)	59283	43932 sf	15351 sf
	- Future (sq ft)			
	- Other, please specify in the comment box below (sq ft)			
13	New infiltrating permeable pavement on subdivided lots (sq ft)			
14	New infiltrating permeable pavement not on subdivided lots (sq ft)			
15	Existing BUA that will remain (not subject to permitting) (sq ft)			
16	Existing BUA that is already permitted (sq ft)			
17	Existing BUA that will be removed (sq ft)	111888	84560 sf	27328 sf
18	Percent BUA		33%	33%
19	Design storm (inches)		1.5 in	1.5 in
20	Design volume of SCM (cu ft)		13038 cf	4714 cf
21	Calculation method for design volume		Simple Method	Simple Method

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

# INFILTRATION SYSTEM

1	Drainage area number		
2	Minimum required treatment volume (cu ft)	13038 cf	4714 cf
<b>GENERAL MDC FROM 02H .1050</b>			
3	Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	Yes
4	Is the SCM located away from contaminated soils?	Yes	Yes
5	What are the side slopes of the SCM (H:V or enter "Vertical" for trenches)?	3:1	3:1
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)?	Yes	Yes
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?	N/A	N/A
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
<b>INFILTRATION SYSTEM MDC FROM 02H .1051</b>			
18	Proposed slope of the subgrade surface (%)	0.1%	0.1%
19	Are terraces or baffles provided?	No	No
20	Type of pretreatment:	Other	Other
<b>Soils Data</b>			
21	Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	Yes
22	SHWT elevation (fmsl)	9.75	7.50
23	Depth to SHWT per soils report (in)	90	>108
24	Ground elevation at boring in soils report (fmsl)	17.25	16.50
25	Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	N/A	N/A
26	Soil infiltration rate (in/hr)	10.48	10.02
27	Factor of safety (FS) (2 is recommended):	2.00	2.00
<b>Elevations</b>			
29	Bottom elevation (fmsl)	12.00 ft	11.00 ft
30	Storage elevation (fmsl)	13.35 ft	13.35 ft
31	Bypass elevation (fmsl)	16.50 ft	16.25 ft
<b>For Basins Only</b>			
32	Bottom surface area (ft <sup>2</sup> )	8,659 sf	1,001 sf
33	Storage elevation surface area (ft <sup>2</sup> )	11,466 sf	3,183 sf
<b>For Trenches Only</b>			
34	Length (ft)		
35	Width (ft)		
36	Perforated pipe diameter, if applicable (inches)		
37	Number of laterals		
38	Total length of perforated piping		
39	Stone type, if applicable		
40	Stone porosity (%)		
41	Is stone free of fines?		
42	Is the stone wrapped in geotextile fabric?		
43	Has at least one inspection port been provided?		
<b>Volumes/Drawdown</b>			
44	Design volume of SCM (cu ft)	13,569 cf	4,856 cf
45	Time to draw down (hours)	1.5 hrs	3.8 hrs
<b>ADDITIONAL INFORMATION</b>			
46	Please use this space to provide any additional information about the infiltration system(s):		

## Infiltration Basin Operation and Maintenance Agreement

I will keep a maintenance record on this SCM. This maintenance record will be kept in a log in a known set location. Any deficient SCM 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 SCM.

**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.

SCM element:	Potential problem:	How to remediate the problem:
The entire SCM	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.

<b>SCM element:</b>	<b>Potential problem:</b>	<b>How to remediate the problem:</b>
<b>The forebay</b>	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 SCM. Replace any media that was removed in the process. Revegetate disturbed areas immediately.
	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.
<b>The main treatment area</b>	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 SCM. 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).
<b>The embankment</b>	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.
<b>The outlet device</b>	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.
<b>The receiving water</b>	Erosion or other signs of damage have occurred at the outlet.	Contact the local NC Department of Environment and Natural Resources Regional Office.



Permit Number: 2021039  
(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.

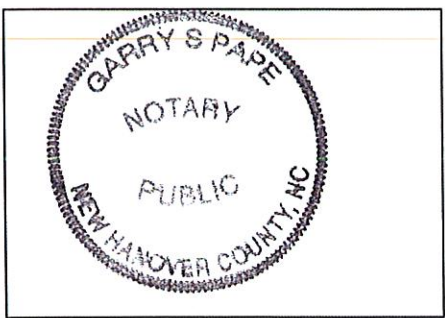
Project name: The Cottages at Bradley Creek  
SCM drainage basin number: 1 & 2

Print name: Marlena Edwards - The Cottages Bradley Creek, LLC  
Title: Manager  
Address: PO Box 64, Wrightsville Beach, NC 28480  
Phone: 910-452-1419  
Signature: [Handwritten Signature]  
Date: 3-2-21

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, Garry S. Pape, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that Marlena Edwards personally appeared before me this 2<sup>nd</sup> day of March, 2021, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements. Witness my hand and official seal,

[Handwritten Signature]



SEAL

My commission expires April 13, 2025