CITY OF WILMINGTON NORTH CAROLINA

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

COMPREHENSIVE STORMWATER MANAGEMENT PERMIT

HIGH DENSITY DEVELOPMENT

SECTION 1 – APPROVAL

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

PERMIT HOLDER: **Horizon Land Holdings, LLC**
PROJECT: **Fortune Place**
ADDRESS: **4900 Gate Post Lane**
PERMIT #: **2014027**
DATE: **October 14, 2014**

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 10/14/2024 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 9/18/14.

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.

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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. Prior to the sale of any lot, all required stormwater deed restrictions must be recorded with the Register of Deeds.

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.

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.

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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 Engineering 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.

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.

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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 14th day of October, 2014

for Sterling Cheatham, City Manager
City of Wilmington

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CITY OF WILMINGTON
NORTH CAROLINA

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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.):

   Fortune Place

2. Location of Project (street address):

   4900 Gate Post Lane

   City: Wilmington County: New Hanover Zip: 28412

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

   From the intersection of Carolina Beach Rd (US 421) & S. College Rd (NC 132), travel 0.9 mile north on 421 to Shade Tree Ln. (SR 2361). Turn right on Shade Tree Ln. and travel approx. 0.15 mile to Gate Post Ln. Turn left. Site is at the end of Gate Post Lane.

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: Horizon Land Holdings, LLC

   Signing Official & Title: Kevin McCarthy, President of KLM Ventures, Inc., Member Manager

   a. Contact information for Applicant / Signing Official:

   Street Address: 206 Causeway Drive, Unit 836

   City: Wrightsville Beach State: NC Zip: 28480

   Phone: 910-520-6011 Fax: _____ Email: Buyhorizonhomes@gmail.com

   Mailing Address (if different than physical address): P.O. Box 3442

   City: Wilmington State: NC Zip: 28406

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

   - [x] 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: _____

   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.
   Wet detention

2. Total Property Area: 587,461 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: 587,461 square feet.
6. Existing Impervious Surface within Property Area: 0 square feet
7. Existing Impervious Surface to be Removed/Demolished: 0 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	152,000
Impervious Pavement	81,285
Pervious Pavement (adj. total, with % credit applied)	0
Impervious Sidewalks	18,366
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Future Development	4,000
Total Onsite Newly Constructed Impervious Surface	255,651

10. Total Onsite Impervious Surface
    (Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 255,651 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 44 %

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

Impervious Pavement	0
Pervious Pavement (adj. total, with % credit applied)	0
Impervious Sidewalks	0
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Total Offsite Newly Constructed Impervious Surface	0

13. Total Newly Constructed Impervious Surface
(Total Onsite + Offsite Newly Constructed Impervious Surface) = 255651 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	(Type of BMP) BMP #	(Type of BMP) BMP #	(Type of BMP) BMP #
Receiving Stream Name	Barnards Creek		
Receiving Stream Index Number	18-80		
Stream Classification	C;Sw		
Total Drainage Area (sf)	587461	0	0
On-Site Drainage Area (sf)	587461		
Off-Site Drainage Area (sf)	0		
Total Impervious Area (sf)	255651	0	0
Buildings/Lots (sf)	152000		
Impervious Pavement (sf)	81285		
Pervious Pavement, % credit (sf)	0		
Impervious Sidewalks (sf)	18366		
Pervious Sidewalks, % credit (sf)	0		
Other (sf)	0		
Future Development (sf)	4000		
Existing Impervious to remain (sf)	0		
Offsite (sf)	0		
Percent Impervious Area (%)	43.5		

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

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
   414 Chestnut Street, Suite 200
   Wilmington, NC 28402

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: Phillip G. Tripp, P.E.

   Consulting Firm: Tripp Engineering, P.C.

   a. Contact information for consultant listed above:

   Mailing Address: 419 Chestnut Street

   City: Wilmington State: NC Zip: 28401

   Phone: 910-763-5100 Fax: 910-763-5631 Email: trippeng@ec.rr.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:_____

SEAL	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: _____

CITY OF WILMINGTON ENGINEERING

VIII. APPLICANT'S CERTIFICATION

I, *(print or type name of person listed in Contact Information, item 1)* , Kevin~ McCarthy 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: K McCarthy Date: 2/28/14

SEAL

DELLA C. BAIRD NOTARY PUBLIC PENDER COUNTY, NC

I, Della C. Baird, a Notary Public for the State of North Carolina, County of Pender, do hereby certify that Kevin McCarthy personally appeared before me this 28 day of February, 2014, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

Della C. Baird

My commission expires: 10-15-16

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.

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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 monculture 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.

BMP element:	Potential problem:	How I will remediate the problem:

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

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 monculture 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.

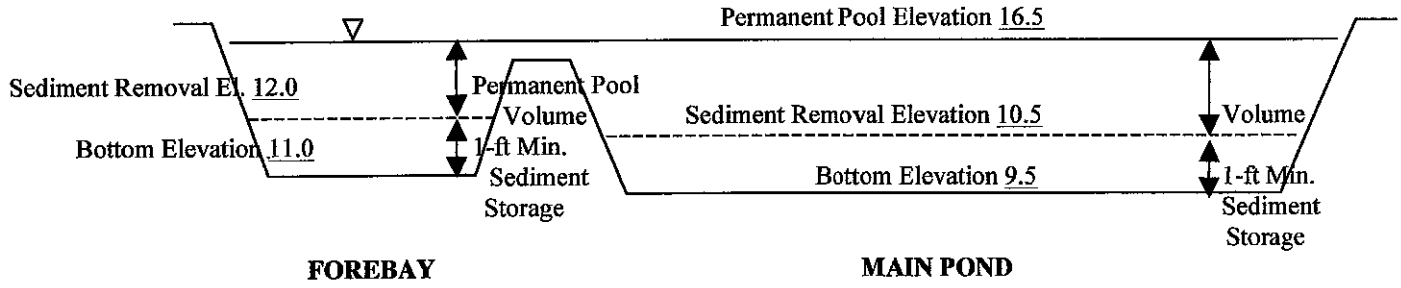
The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads _6.0_ feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads _4.5_ 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:Fortune Place

BMP drainage basin number:1

Print name:Kevin McCarthy

Title:President of KLM Ventures, Inc., Member Manager

Address:P.O. Box 3442, Wilmington, NC 28406

Phone:910-520-6011

Signature: K. McCarthy

Date: 2/28/14

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, Della C. Baird, a Notary Public for the State of North Carolina, County of Pender, do hereby certify that Kevin McCarthy personally appeared before me this 28 day of February, 2014, and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal, Della C. Baird

DELLA C. BAIRD NOTARY PUBLIC PENDER COUNTY, NC

SEAL

My commission expires 10-15-16

Permit No._____
(to be provided by DWQ)

NCDENR

DIVISION OF WATER QUALITY DWQ

STORMWATER MANAGEMENT PERMIT APPLICATION FORM
401 CERTIFICATION APPLICATION FORM

WET DETENTION BASIN SUPPLEMENT

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

I. PROJECT INFORMATION

Project name		Fortune Place
Contact person		Phil Tripp - Tripp Engineering, P.C.
Phone number	(910) 763-5100	
Date	03/26/14	
Drainage area number	1	

II. DESIGN INFORMATION

Site Characteristics				
Drainage area	587,461	ft^2		
Impervious area, post-development	255,651	ft^2		
% impervious	43.52	%		
Design rainfall depth	1.5	in		
Storage Volume: Non-SA Waters				
Minimum volume required	32,432	ft^3	1	OK
Volume provided	39,290	ft^3	1	OK, volume provided is equal to or in excess of volume required.
Storage Volume: SA Waters				
1.5" runoff volume		ft^3		
Pre-development 1-yr, 24-hr runoff		ft^3		
Post-development 1-yr, 24-hr runoff		ft^3		
Minimum volume required		ft^3		
Volume provided		ft^3	0	
Peak Flow Calculations				
Is the pre/post control of the 1yr 24hr storm peak flow required?	Y	(Y or N)		
1-yr, 24-hr rainfall depth	3.9	in		
Rational C, pre-development	0.15	(unitless)		
Rational C, post-development	0.56	(unitless)		
Rainfall intensity: 1-yr, 24-hr storm	4.87	in/hr		OK
Pre-development 1-yr, 24-hr peak flow	9.85	ft^3/sec		
Post-development 1-yr, 24-hr peak flow	36.76	ft^3/sec		
Pre/Post 1-yr, 24-hr peak flow control	26.91	ft^3/sec		
Elevations				
Temporary pool elevation	19.60	fmsl		
Permanent pool elevation	18.00	fmsl		
SHWT elevation (approx. at the perm. pool elevation)	24.00	fmsl		
Top of 10ft vegetated shelf elevation	18.50	fmsl		
Bottom of 10ft vegetated shelf elevation	17.50	fmsl		
Sediment cleanout, top elevation (bottom of pond)	11.50	fmsl		
Sediment cleanout, bottom elevation	10.50	fmsl		
Sediment storage provided	1.00	ft		
Is there additional volume stored above the state-required temp. pool?	Y	(Y or N)		
Elevation of the top of the additional volume	19.6	fmsl	0	OK

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II. DESIGN INFORMATION

Surface Areas				
Area, temporary pool	26,322	ft^2		
Area REQUIRED, permanent pool	22,206	ft^2		
SA/DA ratio	3.78	(unitless)		
Area PROVIDED, permanent pool, A_{perm_pool}	22,761	ft^2		OK
Area, bottom of 10ft vegetated shelf, A_{bot_shelf}	18,684	ft^2		
Area, sediment cleanout, top elevation (bottom of pond), A_{bot_pond}	5,840	ft^2		
Volumes				
Volume, temporary pool	32,782	ft^3		Insufficient. Volume does not agree with data previously entered.
Volume, permanent pool, V_{perm_pool}	87,258	ft^3		
Volume, forebay (sum of forebays if more than one forebay)	15,904	ft^3		
Forebay % of permanent pool volume	18.2%	%		OK
SA/DA Table Data				
Design TSS removal	90	%		
Coastal SA/DA Table Used?	Y	(Y or N)	1	
Mountain/Piedmont SA/DA Table Used?	N	(Y or N)	0	
SA/DA ratio	3.78	(unitless)		
Average depth (used in SA/DA table):				
Calculation option 1 used? (See Figure 10-2b)		(Y or N)	0	
Volume, permanent pool, V_{perm_pool}	87,258	ft^3		
Area provided, permanent pool, A_{perm_pool}	22,761	ft^2		
Average depth calculated	3.84	ft		OK
Average depth used in SA/DA, d_{av}, (Round to nearest 0.5ft)	4.0	ft		OK
Calculation option 2 used? (See Figure 10-2b)	Y	(Y or N)	1	
Area provided, permanent pool, A_{perm_pool}	22,761	ft^2		
Area, bottom of 10ft vegetated shelf, A_{bot_shelf}	18,684	ft^2		
Area, sediment cleanout, top elevation (bottom of pond), A_{bot_pond}	5,840	ft^2		
"Depth" (distance b/w bottom of 10ft shelf and top of sediment)	6.00	ft		
Average depth calculated	3.84	ft		OK
Average depth used in SA/DA, d_{av}, (Round to nearest 0.5ft)	4.0	ft		OK
Drawdown Calculations				
Drawdown through orifice?	Y	(Y or N)	1	
Diameter of orifice (if circular)	3.00	in	1	
Area of orifice (if-non-circular)		in^2	0	
Coefficient of discharge (C_D)	0.60	(unitless)		
Driving head (H_o)	0.53	ft		
Drawdown through weir?	N	(Y or N)	0	
Weir type		(unitless)		
Coefficient of discharge (C_w)		(unitless)		
Length of weir (L)		ft		
Driving head (H)		ft		
Pre-development 1-yr, 24-hr peak flow	9.85	ft^3/sec		
Post-development 1-yr, 24-hr peak flow	36.76	ft^3/sec		
Storage volume discharge rate (through discharge orifice or weir)	0.17	ft^3/sec		
Storage volume drawdown time	3.35	days		OK, draws down in 2-5 days.
Additional Information				
Vegetated side slopes	3	:1		OK
Vegetated shelf slope	10	:1		OK
Vegetated shelf width	10.0	ft		OK
Length of flowpath to width ratio	3	:1		OK
Length to width ratio	1.5	:1		OK
Trash rack for overflow & orifice?	Y	(Y or N)		OK
Freeboard provided	2.0	ft		OK
Vegetated filter provided?	N	(Y or N)		OK
Recorded drainage easement provided?	Y	(Y or N)		OK
Capures all runoff at ultimate build-out?	Y	(Y or N)		OK
Drain mechanism for maintenance or emergencies is:	Pump			