BISSELL
PROFESSIONAL GROUP
The Coastal Experts

July 25, 2024

Currituck County Department of Planning and Community Development
153 Courthouse Road, Suite 110
Currituck, NC 27929

Reference: ***Windswept Pines Phase 3 – Construction Drawings***

Dear Staff:

On behalf of Allies Properties, LLC, Bissell Professional Group is submitting the following information as it relates to an Application for Construction Drawing Approval for Phase 3 of the Windswept Pines subdivision development:

1. Executed Major Subdivision Application Form
2. Construction Drawings
3. Major Stormwater Plan Form with Narrative and Calculations
4. NCDEQ Waterline Extension Permit
5. NCDEQ Stormwater Permit
6. NCDEQ E & S Permit

We thank you for your time and review of this project. If you have any questions or need any additional information please do not hesitate to contact me.

Sincerely yours,

David M. Klebitz, P.E.
Cc: Mr. Justin Old

P.O. Box 1068 • 3512 N. Croatan Hwy. • Kitty Hawk, NC 27949
252-261-3266 • Fax: 252-261-1760 • E-mail:bpg@bissellprofessionalgroup.com

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
RICHARD E. ROGERS, JR.
Director

NORTH CAROLINA
Environmental Quality

July 15, 2024

Currituck County Water System
Attention: Donald McRee, County Manager
153 Courthouse Road
Currituck, North Carolina 27929

Re: Engineering Plans Approval
Distribution Extension
Windswept Pines Phase 3
Currituck County Water System
Water System No.: NC0427010, Currituck County
Serial No.: 24-00301

Dear Applicant:

Enclosed please find one copy of the "Application for Approval..." together with one copy of the referenced engineering plans bearing the Division of Water Resources stamp of approval for the referenced project. These engineering plans are approved under Division of Water Resources Serial Number 24-00301, dated July 12, 2024.

Engineering plans prepared by Mark S. Bissell, P.E., call for the installation of approximately 1,290 feet of 8-inch water main, 490 feet of 4-inch water main, a fire hydrant, valves, and associated appurtenances along Alden Run, North Tall Pines Trail, and South Tall Pines Trail to serve 14 new residential lots within Phase 3 of the Windswept Pines Subdivision in Currituck County. The proposed water main will connect to the existing 8-inch water main along Alden Run at the location of the existing blow-off assembly. Construction of this project must be in accordance with Currituck County Water System's standard specifications.

Please note that in accordance with 15A NCAC 18C .0309(a), no construction, alteration, or expansion of a water system shall be placed into service or made available for human consumption until the Public Water Supply Section has issued Final Approval. Final Approval will be issued and mailed to the applicant upon receipt of both an Engineer's Certification and an Applicant's Certification submitted in accordance with 15A NCAC 18C .0303 (a) and (c).

These plans in the foregoing application are approved insofar as the protection of public health is concerned as provided in the rules, standards and criteria adopted under the authority of Chapter 130A-317 of the General Statutes. This approval does not constitute a warranty of the design, construction, or future operation of the water system.

One copy of the "Application for Approval..." and a copy of the plans with a seal of approval from the department are enclosed. One copy of the approved documents in a digital format (USB) is being forwarded to our Washington Regional Office. The second USB is being retained in our office.

If the Public Water Supply Section can be of further service, please call (919) 707-9100.

Sincerely,

RB Sadosky

Rebecca Sadosky, Ph.D., Chief
Public Water Supply Section
Division of Water Resources, NCDEQ

RS/jem

Enclosures: Approval Document

cc: Jamie Midgette, P.E. Regional Supervisor, Washington Regional Office
Currituck County Health Department
Bissell Professional Group

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
RICHARD E. ROGERS, JR.
Director

NORTH CAROLINA
Environmental Quality

July 15, 2024

CURRITUCK COUNTY WATER DEPARTMENT
ATTN: DONALD I MCREE, COUNTY MANAGER
153 COURTHOUSE ROAD
CURRITUCK, NC 27929

Re: **Authorization to Construct (This is not a Final Approval)**
Issue Date: July 15, 2024
WINDSWEPT PINES PHASE 3
Serial No.: 24-00301 Water System No.: NC0427010
Currituck County

Dear Applicant:

This letter is to confirm that a complete Engineer's Report and a Water System Management Plan have been received, and that engineering plans and specifications have been approved by the Department for **WINDSWEPT PINES PHASE 3, Serial No.: 24-00301.**

The "Authorization to Construct" is valid for 36 months from the issue date. Authorization to construct may be extended if the Rules Governing Public Water Systems [15A NCAC 18C] and site conditions have not changed (see Rule .0305). The "Authorization to Construct" and the engineering plans and specifications approval letter shall be posted at the primary entrance of the job site before and during construction.

Upon completion of the construction or modification, **and prior to placing the new construction or modification into service**, the applicant must submit an Engineer's Certification and Applicant's Certification to the Public Water Supply Section.

- **Engineer's Certification:** in accordance with Rule .0303(a), the applicant shall submit a certification statement signed and sealed by a registered professional engineer stating that construction was completed in accordance with approved engineering plans and specifications, including any provisions stipulated in the Department's engineering plan and specification approval letter.
- **Applicant's Certification:** in accordance with Rule .0303(c), the applicant shall submit a signed certification statement indicating that the requirements for an Operation and Maintenance Plan and Emergency Management Plan have been satisfied in accordance with Rule .0307(d) and (e) and that the system has a certified operator in accordance with Rule .1300. The "Applicant's Certification" form is available at http://www.ncwater.org/ (click on Public Water Supply Section, Plan Review, Plan Review Forms).

Certifications can be sent by mail or attachment to an e-mail message to **PWSSection.PlanReview@deq.nc.gov.**

If this "Authorization to Construct" is for a new public water system, the owner must submit a completed **application for an Operating Permit** and the appropriate fee. For a copy of the application for an Operating Permit please call (919) 707-9076.

Once the certifications and permit application and fee (if applicable) are received and determined adequate, the Department will issue a Final Approval letter to the applicant. In accordance with Rule .0309(a), **no portion of this project shall be placed into service until the Department has issued Final Approval.**

Please contact us at (919) 707-9100 if you have any questions or need additional information.

Sincerely,

RBSadosky

Rebecca Sadosky, Ph.D., Chief
Public Water Supply Section
Division of Water Resources, NCDEQ

cc: JAMIE MIDGETTE, P.E., Regional Engineer
BISSELL PROFESSIONAL GROUP

North Carolina Department of Environmental Quality
Division of Water Resources

Authorization to Construct

Project Applicant:	**CURRITUCK COUNTY WATER DEPARTMENT**
Public Water System Name:	**CURRITUCK COUNTY WATER SYSTEM**
Water System No.:	**NC0427010**
Project Name:	**WINDSWEPT PINES PHASE 3**
Serial No.:	**24-00301**
Issue Date:	**July 15, 2024**
Expiration Date:	36 Months after Issue Date

In accordance with 15A NCAC 18C .0305, this Authorization to Construct must be posted at the primary entrance to the job site during construction.

MARK S. BISSELL
BISSELL PROFESSIONAL GROUP
P.O. BOX 1068
KITTY HAWK, NC 27949

Major Subdivision Submittal Checklist – Construction Drawings

Staff will use the following checklist to determine the completeness of your application for construction drawings within ten business days of submittal. Please make sure all of the listed items are included. The Director shall not process an application for further review until it is determined to be complete.

Major Subdivision

Submittal Checklist – Construction Drawings

Date Received: 5-23-24 TRC Date: _____

Project Name: Windswept Pines Phase 3 Construction Drawings

Applicant/Property Owner: Allied Properties, LLC

	Construction Drawings Submittal Checklist – Documents provided on USB flash drive or CD	
1	Complete Major Subdivision application or fee for amended drawings ($250)	X
2	Construction drawing with engineer's seal	X
3	Proposed landscape plan, including common areas, open space set-aside configuration and schedule, required buffers, fences and walls, and tree protection plan	X
4	Stormwater form(s), final stormwater management narrative and grading plan, if changed since preliminary plat	X
5	Proposed construction drawings (road, stormwater management infrastructure, utilities)	X
6	NCDEQ wastewater line extension permit, if applicable	
7	NCDEQ wastewater plant construction permit, if applicable	
8	NCDEQ waterline extension permit, if applicable	X
9	NCDEQ stormwater permit including application, plan, and narrative with calculations	X
10	NCDEQ soil erosion and sedimentation control permit	X
11	NCDEQ CAMA major permit, if applicable	
12	NCDOT driveway permit and encroachment agreement, if applicable	
13	Wetland fill permit(s), if applicable	

For Staff Only

Pre-application Conference *(Optional)*

Pre-application Conference was held on _____ and the following people were present:

_____

Comments

_____

_____

Deel Engineering, PLLC
NC Firm License P-1045

June 5, 2024

Currituck County Planning & Zoning
Currituck Historic Courthouse
153 Courthouse Road, Suite 110
Currituck, North Carolina 27929

Re: Stormwater Management Design Submittal
Major Stormwater Plan
Windswept Pines Subdivision, Phase 3
Moyock, Currituck County, NC

Attached, please find a Currituck County Stormwater Management Application Package for the Windswept Pines Subdivision, Phase 3. Page numbers referenced in this cover letter refer to page numbering of this .pdf package as a standalone compiled document, relative to this cover letter as page 1 of the .pdf submission (98 pages total)

.Pdf copies of the following items are included with and shall be considered part of this submittal package:

1. Major Stormwater Plan Form SW-002 (Pg 2 of 98)
2. NRCS Method Peak Flow Forms SW-004 with attachments (Pg 6 of 98)
3. NCDEQ SWM Permit (Pg 12 of 98)
4. Stormwater Management Plan Narrative (Pg 28 of 98)
5. Appendix B – Soils Report (Pg 35 of 98)
6. Appendix C – Covenants / O&M Requirements (Pg 43 of 98)
7. Appendix D – Drainage Area Tabulations (Pg 56 of 98)
8. Appendix E - EPA SWMM Model Report (Pg 77 of 98)
9. Appendix F – SESCP Flow & Velocities Check (Pg 90 of 98)
10. 24” x 36” EPA SWMM Model Existing Conditions Schematic Plan (Pg 97 of 98)
11. 24” x 36” EPA SWMM Model Proposed Conditions Schematic Plan (Pg 98 of 98)

This package is being submitted with a matching Construction Plans TRC Submittal, and so additional Construction Plans are not included under this transmittal (you will receive your plans under the TRC submittal).

At your earliest convenience, please review the attached information for compliance. If you have any questions, or if you require any additional information, please do not hesitate to contact me at (252) 202-3803.

Sincerely,

David A. Deel, P.E.
Encl: as stated

OFFICIAL USE ONLY:
Permit Number: _____
Date Filed: _____
Date Approved: _____

Major Stormwater Plan
Form SW-002

Contact Information

APPLICANT:

Name: Allied Properties, LLC
Address: 417-D Caratoke Highway
Moyock, NC 27958
Telephone: 252-435-2718
E-Mail Address: jold@qhoc.com

PROPERTY OWNER:

Name: Same
Address: _____
Telephone: _____
E-Mail Address: _____

Property Information

Physical Street Address: Alden Run

Parcel Identification Number(s): 0009-000-006A-0000 , 0094-000-005D-0000, 0094,000-005E-0000

FEMA Flood Zone Designation: Zone X

Request

Project Description: Subdivision-Phase 3

Total land disturbance activity: 19ac sf

Calculated volume of BMPs: 610,155+/- sf

Maximum lot coverage: 155,070 sf

Proposed lot coverage: 155,070 sf

TYPE OF REQUEST

- ☒ Major subdivision (10-year, 24-hour rate)
- ☐ Major site plan (5-year, 24-hour rate)

METHOD USED TO CALCULATE PEAK DISCHARGE

- ☐ Rational Method
- ☐ NRCS Method (TR-55 and TR-20)
- ☐ Simple volume calculation for small sites (less than 10 acres)
- ☐ Alternative stormwater runoff storage analysis
- ☐ Downstream drainage capacity analysis
- X EPA SWMM

I hereby authorize county officials to enter my property for purposes of determining compliance. All information submitted and required as part of this process shall become public record.

_____ 5-22-24

Property Owner(s)/Applicant — Date

The table below depicts the design standards of the major stormwater plan application. Please make sure to include all applicable listed items to ensure all appropriate standards are reviewed.

Major Stormwater Plan

Design Standards Checklist

Date Received: _____

Project Name: Windswept Pines Ph3

Applicant/Property Owner: Allied Properties, LLC

Minor Stormwater Plan Design Standards Checklist		
General		
1	Property owner name and address.	DAD
2	Site address and parcel identification number.	DAD
3	North arrow and scale to be 1" = 100' or larger.	DAD
Site Features		
4	Scaled drawing showing existing and proposed site features: Property lines with dimensions, acreage, streets, easements, structures (dimensions and square footage), fences, bulkheads, septic area (active and repair), utilities, vehicular use areas, driveways, and sidewalks.	DAD
5	Approximate location of all designated Areas of Environmental Concern (AEC) or other such areas which are environmentally sensitive on the property, such as Maritime Forest, CAMA, 404, or 401 wetlands as defined by the appropriate agency.	DAD
6	Existing and proposed ground elevations shown in one foot intervals. All elevation changes within the past six months shall be shown on the plan.	DAD
8	Limits of all proposed fill, including the toe of fill slope and purpose of fill.	DAD
9	Square footage of all existing and proposed impervious areas (structures, sidewalks, walkways, vehicular use areas regardless of surface material), including a description of surface materials.	DAD
10	Existing and proposed drainage patterns, including direction of flow.	DAD
11	Location, capacity, design plans (detention, retention, infiltration), and design discharge of existing and proposed stormwater management features.	DAD
12	Elevation of the seasonal high water level as determined by a licensed soil scientist.	DAD
13	Plant selection.	DAD
Permits and Other Documentation		
14	NCDENR stormwater permit application (if 10,000sf or more of built upon area).	DAD
15	NCDENR erosion and sedimentation control permit application (if one acre or more of land disturbance).	DAD
16	NCDENR coastal area management act permit application, if applicable.	N/A
17	Stormwater management narrative with supporting calculations.	DAD
18	Rational Method Form SW-003 or NRCS Method Form SW-004	DAD
19	Alternative stormwater runoff storage analysis and/or downstream drainage capacity analysis, if applicable	N/A
20	Design spreadsheets for all BMPs (*Appendix F – Currituck County Stormwater Manual*).	N/A
21	Detailed maintenance plan for all proposed BMPs.	DAD

Certificate		
22	The major stormwater plan shall contain the following certificate: I, _____, owner/agent hereby certify the information included on this and attached pages is true and correct to the best of my knowledge. On the plan entitled _____, stormwater drainage improvements shall be installed according to these plans and specifications and approved by Currituck County. Yearly inspections are required as part of the stormwater plan. The owner is responsible for all maintenance required. Currituck County assumes no responsibility for the design, maintenance, or performance of the stormwater improvements. Date:_____ Owner/Agent:_____	DAD

Major Stormwater Plan Submittal Checklist

Staff will use the following checklist to determine the completeness of your application. Please make sure all of the listed items are included. Staff shall not process an application for further review until it is determined to be complete.

Major Stormwater Plan Form SW-002

Submittal Checklist

Date Received: _____

Project Name: Windswept Pines Ph3

Applicant/Property Owner: Allied Properties, LLC

Major Stormwater Plan Form SW-002 Submittal Checklist		
1	Completed Major Stormwater Plan Form SW-002	
2	Completed Rational Method Form SW-003 or NRCS Method Form SW-004	
3	Stormwater plan	
4	NCDENR permit applications, if applicable	
5	3 copies of plans	
6	3 hard copies of ALL documents	
7	**1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)**	

Comments

_____

_____

_____

WINDSWEPT PINES - PHASE 1 - 3
Residential Subdivision

Allowable Built-Upon Area and Deed Restriction Calculations

Low Density

Excerpt from NCDEQ SWM Permit #SW7170605MOD

~~57~~	~~20,251~~	~~5,589~~
~~58~~	~~20,107~~	~~5,949~~
60	23,980	6,595
61	22,068	6,089
62	23,252	6,394
63	22,706	6,244
64	21,130	5,811
65	21,153	5,817
66	21,153	5,817
67	21,153	5,817
68	21,227	5,837
69	20,000	5,500
70	20,000	5,500
71	20,000	5,500
72	20,587	5,661
73	20,587	5,661
Total	1,501,379	412,879

PHASE 3 LOTS

Lot 59 is a residual parcel that is not a part and intentionally excluded

NRCS Method Peak Flow
Form SW-004

Project Information

Project Location: East end of Alden Run (No Address assigned yet)

Parcel Identification Number(s): 0009000006A0000

Check One: x Pre-Development ☐ Post-Development

Calculations

Runoff Curve Number and Runoff

1. Runoff Curve Number (CN)

Soil Type	Cover Description	CN (Table 2-6)	Area (acres)	CN*A
C	Wooded (Soils Type C)(Good Condition)	70		**
C	Open Space (Soils Type C) (Good Condition)	74		**
C	Fields (Soils Type C, Meadows, Good)	71		**
C	Res Lot (30% Coverage, C Soils)	81.2		**
C	Res Lot (10% Coverage, C Soils)	76.4		
B	Wooded (Soils Type B)(Good Condition)	55		**
B	Open Space (Soils Type B) (Good Cond)	61		**
B	Fields (Soils Type B, Meadows, Good)	58		**
N/A	Impervious	98		**
		Totals		

$CN_{Weighted} = \frac{SCN*A}{SA} =$ _____ **Use CN =** **

** See Itemized Spreadsheets, Attached.

2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency. . . . . Yr	2-yr	10-yr	100-yr
Rainfall, P (24-hour) (Use Table 2-7). . . . . In	3.74 in	5.74 in	9.54 in
Runoff, Q. . . . . In	*	*	*

* See EPA SWMM Results

Time of Concentration (Tc)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments

Sheet flow	**(Applicable to T_c only)**							
	Segment ID		Pre			Post		
1.	Surface description		*			*		
2.	Manning's roughness coeff., n (Table 2-9)							
3.	Flow Length, L (total L<= 300 ft)	ft						
4.	24-hr rainfall, P	in	4.0			6.0		
5.	Land Slope, s	ft / ft						
6.	$T_t = 0.42(nL)^{0.8} / P_2^{0.5} s^{0.4}$	min		+			=	
Shallow concentrated flow								
	Segment ID							
7.	Surface Description: paved (P) or unpaved (U)?							
8.	Flow Length, L	ft						
9.	Watercourse slope, s	ft / ft						
10.	Average velocity, V (Table 2-8)	ft / sec						
11.	$T_t = L / V$	min		+			=	
Channel flow								
	Segment ID							
	Pipe (P) or Channel (C)?							
	If pipe, enter D (in):							
	If channel, enter bottom width:							
	If channel, enter side slopes (_:1):							
12.	Cross sectional flow area, a	sq ft						
13.	Wetted perimeter, w_p	ft						
14.	Hydraulic radius, $r = a / w_p$	ft						
15.	Channel slope, s	ft / ft						
16.	Manning's roughness coeff., n							
17.	$V = 1.49\ r^{0.67} s^{0.5} / n$	ft / sec						
18.	Flow length, L	ft						
19.	$T_t = L / 60V$	min		+			=	
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, 19)						min	

* Lag Tc & Composite Cn info calculated in attached Excel Spreadsheet

Graphical Peak Discharge

1. Data:

   Drainage Area, Am = _____ sq mi (acres/640)

   Runoff Curve Number, CN = _____ (From Runoff Curve Number Worksheet)

   Time of Concentration, Tc = _____ hr (From Time of Concentration Worksheet)

   Rainfall Distribution = Type III

   Pond and swamp areas spread throughout watershed = _____ % of A_m (_____ acres covered)

			Storm #1	Storm #2	Storm #3
2.	Frequency	yr			
3.	Rainfall, P (24-hour)	in			
4.	Initial abstraction, I_a . . . . . (Use CN)	in			
5.	Compute I_a/P				
6.	Unit peak discharge, q_u . . . . . (use T_c and I_a/P with Figure 2-9)	csm/in			
7.	Runoff, Q . . . . . (From Runoff Curve Number Worksheet)	in			
8.	Pond and swamp adjustment factor, F_p . . . . . (Use Table 2-10)				
9.	Peak discharge, Q_p . . . . . (Where $Q_p = q_u A_m Q F_p$)	cfs	*	*	*

* See attached Spreadsheets & EPA SWMM Report for results at critical locations

Applicant

Date

NRCS Method Peak Flow
Form SW-004

Project Information

Project Location: East end of Alden Run (No Address assigned yet)

Parcel Identification Number(s): 0009000006A0000

Check One: □ Pre-Development x Post-Development

Calculations

Runoff Curve Number and Runoff

1. Runoff Curve Number (CN)

Soil Type	Cover Description	CN (Table 2-6)	Area (acres)	CN*A
C	Wooded (Soils Type C)(Good Condition)	70		**
C	Open Space (Soils Type C) (Good Condition)	74		**
C	Fields (Soils Type C, Meadows, Good)	71		**
C	Res Lot (30% Coverage, C Soils)	81.2		**
C	Res Lot (10% Coverage, C Soils)	76.4		
B	Wooded (Soils Type B)(Good Condition)	55		**
B	Open Space (Soils Type B) (Good Cond)	61		**
B	Fields (Soils Type B, Meadows, Good)	58		**
N/A	Impervious	98		**
C	Prop Res Lot (26% Coverage, C Soils)	80.3		**
		Totals		

$CN_{Weighted} = \frac{SCN*A}{SA} =$ _____ **Use CN =** **

** See Itemized Spreadsheets, Attached.

2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency. . . . . Yr	2-yr	10-yr	100-yr
Rainfall, P (24-hour) (Use Table 2-7). . . . . In	3.74 in	5.74 in	9.54 in
Runoff, Q. . . . . In	*	*	*

* See EPA SWMM Results

Time of Concentration (Tc)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments

Sheet flow	**(Applicable to T_c only)**							
	Segment ID		Pre			Post		
1.	Surface description		*			*		
2.	Manning's roughness coeff., n (Table 2-9)							
3.	Flow Length, L (total L<= 300 ft)	ft						
4.	24-hr rainfall, P	in	4.0			6.0		
5.	Land Slope, s	ft / ft						
6.	$T_t = 0.42(nL)^{0.8} / P_2^{0.5} s^{0.4}$	min		+			=	
Shallow concentrated flow								
	Segment ID							
7.	Surface Description: paved (P) or unpaved (U)?							
8.	Flow Length, L	ft						
9.	Watercourse slope, s	ft / ft						
10.	Average velocity, V (Table 2-8)	ft / sec						
11.	$T_t = L / V$	min		+			=	
Channel flow								
	Segment ID							
	Pipe (P) or Channel (C)?							
	If pipe, enter D (in):							
	If channel, enter bottom width:							
	If channel, enter side slopes (_:1):							
12.	Cross sectional flow area, a	sq ft						
13.	Wetted perimeter, w_p	ft						
14.	Hydraulic radius, $r = a / w_p$	ft						
15.	Channel slope, s	ft / ft						
16.	Manning's roughness coeff., n							
17.	$V = 1.49\ r^{0.67} s^{0.5} / n$	ft / sec						
18.	Flow length, L	ft						
19.	$T_t = L / 60V$	min		+			=	
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, 19)						min	

* Lag Tc & Composite Cn info calculated in attached Excel Spreadsheet

Graphical Peak Discharge

1. Data:

   Drainage Area, Am = _____ sq mi (acres/640)

   Runoff Curve Number, CN = _____ (From Runoff Curve Number Worksheet)

   Time of Concentration, Tc = _____ hr (From Time of Concentration Worksheet)

   Rainfall Distribution = Type III

   Pond and swamp areas spread throughout watershed = _____ % of A_m (_____ acres covered)

			Storm #1	Storm #2	Storm #3
2.	Frequency	yr			
3.	Rainfall, P (24-hour)	in			
4.	Initial abstraction, I_a . . . . . (Use CN)	in			
5.	Compute I_a/P				
6.	Unit peak discharge, q_u . . . . . (use T_c and I_a/P with Figure 2-9)	csm/in			
7.	Runoff, Q . . . . . (From Runoff Curve Number Worksheet)	in			
8.	Pond and swamp adjustment factor, F_p . . . . . (Use Table 2-10)				
9.	Peak discharge, Q_p . . . . . (Where $Q_p = q_u A_m Q F_p$)	cfs	*	*	*

* See attached Spreadsheets & EPA SWMM Report for results at critical locations

Applicant

Date

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
WILLIAM E. TOBY VINSON, JR
Interim Director

NORTH CAROLINA
Environmental Quality

May 20, 2024

Windswept Pines Community Association, Inc.
Attn: Justin Old
417 D Caratoke Hwy
Moyock, NC 27958

Subject: **State Stormwater Management Permit No. SW7170605 Modification**
Windswept Pines – Phase 1 - 3
Low Density Subdivision – Curb Outlet Swales
Currituck County

Dear Justin Old:

The Washington Regional Office received a complete Stormwater Management Permit Application for the transfer of ownership of Windswept Pines – Phase 1 - 3 from Allied Properties, LLC to Windswept Pines Community Association, Inc. on March 27, 2024. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H.1000. We are forwarding Permit No. SW7170605 dated May 20, 2024, for the subject project. The modifications include:

1. Adding 14 lots to the subdivision and associated Build Upon Area for a total of 657,476 square feet of impervious surface.
2. Changing the percent impervious to 24.00%

This permit shall be effective from the date of issuance until rescinded and the project shall be subject to the conditions and limitations as specified therein and does not supersede any other agency permit that may be required. Failure to comply with these requirements will result in future compliance problems. Please note that this permit is not transferable except after notice to and approval by the Division.

This cover letter, attachments, and all documents on file with DEMLR shall be considered part of this permit and is herein incorporated by reference.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing by filing a written petition with the Office of Administrative Hearings (OAH). The written petition must conform to Chapter 150B of the North Carolina General Statutes and must be filed with the OAH within thirty (30) days of receipt of this permit. You should contact the OAH with all questions regarding the filing fee (if a filing fee is required) and/or the details of the filing process at 6714 Mail Service Center, Raleigh, NC 27699-6714, or via telephone at 919-431-3000, or visit their website at www.NCOAH.com. Unless such demands are made this permit shall be final and binding. If you have any questions concerning this permit, please contact Carl Dunn in the Washington Regional Office, at (252) 948-3973 or denis.hyska@deq.nc.gov.

Sincerely,
Denis Hyska, CAPM
Division of Energy, Mineral and Land Resources

cc: David Klebitz – Bizzell Professional Group (davek@bissellprofessionalgroup.com)
Richard Godsey - Currituck County Chief Building Inspector (richard.godsey@currituckcountync.gov)
Washington Regional Office Stormwater File

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES

STATE STORMWATER MANAGEMENT PERMIT

LOW DENSITY SUBDIVISION DEVELOPMENT WITH A CURB OUTLET SWALE SYSTEM

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

Windswept Pines Community Association, Inc

Windswept Pines – Phase 1 - 3

Currituck County

FOR THE

construction, operation and maintenance of a 24% low density subdivision project with a curb outlet swale system in compliance with the provisions of Title 15A NCAC 2H .1000 (hereafter referred to as the *"stormwater rules")* and the approved stormwater management plans and specifications, and other supporting data as attached and on file with and approved by the Division of Energy, Mineral and Land Resources (hereafter referred to as the Division or DEMLR) and considered a part of this permit for the Windswept Pines, Phase 1 - 3 Subdivision located at Moyock, NC.

The Permit shall be effective from the date of issuance until rescinded and shall be subject to the following specific conditions and limitations:

I. DESIGN STANDARDS

1. The overall tract built-upon area percentage for the project must be maintained at 24% per the requirements of the stormwater rules. This permit covers the construction of a total of 657,476 square feet of built-upon area (BUA).

2. Each of the 73 lots is limited to a maximum built-upon area as indicated in the application and as shown in the attached allowable built-upon table.

3. This project proposes a curb outlet system. Each of the designated curb outlet swales as shown on the approved plan must be maintained at a minimum of 100' long, maintain 3:1 (H:V) side slopes or flatter, have a longitudinal slope no steeper than 5%, carry the flow from a 10- year storm in a non-erosive manner, and maintain a dense vegetated cover. With the issuance of this permit, the Division is granting a minor variance from the "100' minimum curb outlet swale length" requirements for one curb outlet swale draining into pond 4B. The proposed BMP's for this project will provide equal, or better stormwater controls for the stormwater runoff, than the loss of 50' of curb outlet swale length.

4. Runoff conveyances other than the curb outlet system swales, such as perimeter ditches, must be vegetated with side slopes no steeper than 3:1 (H:V).

5. Five wet detention ponds are provided to meet the Currituck County Unified Development Ordinance and are not covered by this permit.

6. No piping shall be allowed except those minimum amounts necessary to direct runoff beneath an impervious surface such as a road or under driveways to provide access. With the issuance of this permit, the Division is granting a minor variance from the "no piping" requirements as set in 15A NCAC 2H.1003(6)(b), at the following locations: inlets and the outlets at the proposed BMP's and piping between lots 2 & 3, and 55 & 56 and 63 & 64. The proposed BMP's for this project will provide equal, or better stormwater controls for the stormwater runoff, than the vegetated swales lost by extended piping.

7. The project shall provide and maintain a minimum 50-foot wide vegetative buffer adjacent all surface waters, measured horizontally from and perpendicular to the normal pool of impounded structures, the top of bank of each side of streams and rivers and the mean high water line of tidal waters. All runoff directed into and through the vegetative buffer must flow through the buffer in a diffuse manner.

8. Stormwater runoff that is directed to flow through any wetlands shall flow into and through these wetlands at a non-erosive velocity.

II. SCHEDULE OF COMPLIANCE

1. No person shall alter the approved stormwater management system or fill in, alter, or pipe any drainage feature (such as swales) shown on the approved plans as part of the stormwater management system, except for minimum driveway crossings, unless and until the permittee submits a modification to the permit and receives approval from the Division.

2. The maximum built-upon area assigned to each lot via this permit and the recorded deed restrictions may not be increased or decreased by either the individual lot owner or the permittee unless and until the permittee notifies the Division and obtains written approval from the Division.

3. The permittee shall review each lot for new construction and all subsequent modifications and additions, for compliance with the requirements of the permit. The plans reviewed must include all proposed built-upon area, grading, and driveway pipe placement. The permittee may establish an Architectural Review Board (ARB) or Committee (ARC) to review new and modified lot development plans for compliance with the Covenants and Restrictions, including the BUA limit. However, any approval given by the ARB or ARC on behalf of the permittee does not relieve the permittee of the responsibility to maintain compliance with the overall permitted built-upon area for the project.

4. The permittee is responsible for verifying that the proposed built-upon area on each individual lot, and for the entire project, does not exceed the maximum allowed by this permit. The permittee shall routinely monitor the lots and where a lot is determined to have exceeded the permitted maximum BUA, the permittee shall notify the lot owner of such in writing and shall require remediation within a reasonable time frame to bring the lot into compliance.

5. Curb outlet swales, swales, vegetated areas and other vegetated conveyances shall be constructed in their entirety, vegetated, and operational for their intended use prior to the construction of any built-upon surface, per the approved plans.

6. During construction, erosion shall be kept to a minimum and any eroded areas of the swales or other vegetated conveyances will be repaired immediately.

7. The permittee shall at all times provide and perform the operation and maintenance necessary as listed in the signed Operation and Maintenance Agreement, such that the

permitted curb outlet swales and stormwater management system functions at its optimum efficiency.

8. Deed restrictions are incorporated into this permit by reference and must be recorded with the Office of the Register of Deeds prior to the sale of any lot. Recorded deed restrictions must include, at a minimum, the following statements related to stormwater management:

   a. The following covenants are intended to ensure ongoing compliance with State Stormwater Management Permit Number SW7170605, as issued by the Division of Energy, Mineral and Land Resources under NCAC 2H.1000.
   b. The State of North Carolina is made a beneficiary of these covenants to the extent necessary to maintain compliance with the Stormwater Management Permit.
   c. These covenants are to run with the land and be binding on all persons and parties claiming under them.
   d. The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the Division.
   e. Alteration of the drainage as shown on the approved plans may not take place without the concurrence of the Division.
   f. The maximum built-upon area per lot is listed in the attached Table for the Windswept Pines Subdivision, Phase 1 - 3. 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, gravel, brick, stone, slate, coquina, driveways, and parking areas, but does not include raised, open wood decking, or the water surface of swimming pools.
   g. Filling in, piping or altering any 3:1 vegetated conveyances (ditches, swales, etc.) associated with the development except for average driveway crossings, is prohibited by any persons.
   h. Filling in, piping or altering any designated 5:1 curb outlet swale or vegetated area associated with the development is prohibited by any persons.
   i. A 50-foot wide buffer must be provided adjacent to surface waters, measured horizontally from and perpendicular to the normal pool of impounded structures, the top of bank of both sides of streams and rivers, and the mean high waterline of tidal waters.
   j. All roof drains shall terminate at least 50' from the normal pool of impounded structures, the banks of rivers and streams and the Mean High Waterline of tidal waters.
   k. Each designated curb outlet swale or 100' vegetated area shown on the approved plan must be maintained at a minimum of 100' long, maintain 3:1 (H:V) side slopes or flatter, have a longitudinal slope no steeper than 5%, carry the flow from a 10 year storm in a non-erosive manner, maintain a dense vegetated cover, and be located in either a dedicated common area or a recorded drainage easement.
   l. Any individual or entity found to be in noncompliance with the provisions of a stormwater management permit or the requirements of the stormwater rules is subject to enforcement procedures as set forth in N.C.G.S. 143, Article 21.

9. The permittee must submit a copy of the recorded deed restrictions within 30 days of the date of recording.

10. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:

    a. Any revision to the approved plans, regardless of size.
    b. Redesign or addition to the approved amount of built-upon area or to the drainage area.
    c. Further subdivision, acquisition or sale of the project area in whole or in part. The project area is defined as all property owned by the permittee, for which Sedimentation and Erosion Control Plan approval or a CAMA Major permit was sought.
    d. Filling in, piping, or altering any vegetative conveyance shown on the approved plan, except the minimum driveway crossings.
    e. The development of any future area or additional phase(s) noted on the approved plans.

11. All stormwater conveyances will be located in either public rights-of-way, dedicated common areas or drainage easements. The final plats for the project will be recorded showing all such required rights-of-way, common areas and easements, in accordance with the approved plans.

12. The permittee must certify in writing that the project's stormwater controls, and impervious surfaces have been constructed within substantial intent of the approved plans and specifications. Any deviation from the approved plans must be noted on the Certification. The permittee shall submit the Certification to the Division within 30 days of completion of the project.

13. The permittee shall submit all information requested by the Director or his representative within the time frame specified in the written information request.

14. The Director 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 Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.

III. GENERAL CONDITIONS

1. This permit is not transferable to any person or entity except after notice to and approval by the Director. A request to transfer the permit will be considered on its merits and may or may not be approved. The permittee shall complete, sign and submit one of the two Name/Ownership Change Forms available online. The Name/Ownership Change Form must be accompanied by the supporting documentation as listed on the form and must be submitted to the appropriate Regional Office of the Division at least 60 days prior to any one or more of the following events:

    a. The sale or conveyance of the project area in whole or in part, except for individual lot sales which are made subject to the recorded covenants and restrictions of record;
    b. The sale or conveyance of the common areas to the HOA or POA where the requirements of Session Law 2011-256 have been met;
    c. The dissolution of the corporate entity, LLC, or General Partnership;
    d. Bankruptcy and/or foreclosure proceedings;
    e. A name change of the permittee;
    f. A name change of the project;
    g. A mailing address change of the permittee.

2. The Permittee is responsible for compliance with all the terms and conditions of this permit until such time as the Division approves the permit transfer in writing. Neither the sale of the project area, in whole or in part, nor the conveyance of common area to a third party constitutes an approved transfer of the stormwater permit.

3. The permit issued shall continue in force and effect until revoked or terminated.

4. 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.

5. The issuance of this permit does not prohibit the Director from reopening and modifying the permit, revoking and reissuing the permit, or terminating the permit for cause as allowed by the laws, rules, and regulations contained in Title 15A of the North Carolina Administrative Code, Subchapter 2H.1000; and North Carolina General Statute 143-215.1 et. al.

6. The issuance of this permit does not preclude the Permittee from complying with and obtaining any and all other permits or approvals that are required in order for this development to take place, as required by any statutes, rules, regulations, or ordinances, which may be imposed by any other Local, State or Federal government agency having jurisdiction. Any activities undertaken at this site that cause a water quality violation or undertaken prior to receipt of the necessary permits or approvals to do so are considered violations of NCGS 143-215.1, and subject to enforcement procedures pursuant to NCGS 143-215.6.

7. Any person or entity found to be in noncompliance with the provisions of a stormwater management permit or the requirements of the stormwater rules is subject to enforcement procedures as set forth in N.C.G.S. 143, Article 21.

8. Approved plans, application, supplements, operation & maintenance agreements and specifications for projects covered by this permit are incorporated by reference and are enforceable parts of the permit. A copy of this permit, application, supplements, the operation and maintenance agreements, and the approved plans and specifications shall be maintained on file by the Permittee at all times.

9. The Permittee grants permission to DEMLR Staff to enter the property during normal business hours for the purposes of inspecting the stormwater control system and its components.

10. Unless specified elsewhere, permanent seeding requirements for the swales must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual.

Permit issued this the 20th day of May 2024.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

For Toby Vinson, Interim Director
Division of Energy, Mineral and Land Resources
By Authority of the Environmental Management Commission

Permit Number SW7170605

Attachment A

Breakdown of the allowed BUA for each lot for the low-density permit SW7170605

WINDSWEPT PINES - PHASE 1 - 3
Residential Subdivision

Allowable Built-Upon Area and Deed Restriction Calculations

Low Density

LOT NO.	LOT AREA (SF)	MAXIMUM BUILT-UPON AREA (SF)	
1	20,016	5,504	PHASE 1 LOTS
2	20,028	5,508	
3	20,023	5,506	
4	20,014	5,504	
5	20,070	5,519	
6	20,036	5,510	
7	20,000	5,500	
8	20,001	5,500	
9	20,106	5,529	
10	20,003	5,501	
11	20,001	5,500	
12	20,005	5,501	
13	20,048	5,513	PHASE 2 LOTS
14	20,002	5,501	
15	20,008	5,502	
16	20,004	5,501	
17	20,004	5,501	
18	20,001	5,500	
19	20,000	5,500	
20	21,095	5,801	
21	21,552	5,927	
22	20,367	5,601	
23	20,404	5,611	
24	20,455	5,625	
25	25,310	6,960	
26	24,226	6,662	
27	23,697	6,517	
28	23,058	6,341	
29	20,017	5,505	
30	20,014	5,504	
31	20,013	5,504	
32	20,020	5,506	
33	20,014	5,504	
34	20,023	5,506	
35	25,108	6,905	
36	25,036	6,885	
37	24,509	6,740	
38	23,074	6,345	
39	20,073	5,520	
40	20,016	5,504	
41	20,197	5,554	
42	20,030	5,508	PHASE 1 LOTS
43	20,015	5,504	
44	20,000	5,500	
45	20,000	5,500	
46	20,683	5,688	
47	20,023	5,506	
48	20,000	5,500	
49	20,118	5,532	
50	20,000	5,500	
51	20,035	5,510	
52	21,774	5,988	
53	20,476	5,631	
54	20,125	5,534	
55	20,022	5,506	
56	20,016	5,504	

57	20,251	5,569	
58	20,167	5,546	
60	23,980	6,595	PHASE 3 LOTS
61	22,068	6,069	
62	23,252	6,394	
63	22,706	6,244	
64	21,130	5,811	
65	21,153	5,817	
66	21,153	5,817	
67	21,153	5,817	
68	21,227	5,837	
69	20,000	5,500	
70	20,000	5,500	
71	20,000	5,500	
72	20,587	5,661	
73	20,587	5,661	
Total	**1,501,379**	**412,879**	

Lot 59 is a residual parcel that is not a part and intentionally excluded

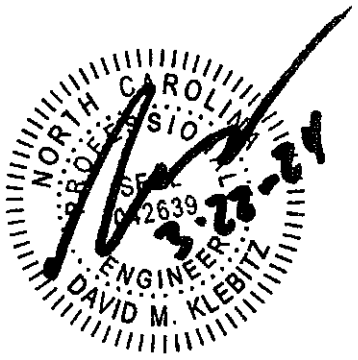
WINDSWEPT PINES - PHASE 1 - 3
Residential Subdivision

Allowable Built-Upon Area and Deed Restriction Calculations

Low Density

Project Area Data:		
	Area (sf)	
Total Property Area:	2,912,940	66.87 Ac.
Commercial Lot Not A Part:	64,548	1.48 Ac.
McCrary Lot 59 Not A Part:	108,906	2.50 Ac.
Total Project Area:	2,739,486	62.89 Ac.
PHASE 1	Area (sf)	
Phase-1 Residential Lot Area:	584,038	13.41 Ac.
Phase-1 Common Area:	455,895	10.47 Ac.
Phase-1 Right-of-way Area:	99,531	2.28 Ac.
Phase Total:	1,139,464	26.16 Ac.
PHASE 2	Area (sf)	
Phase-2 Residential Lot Area:	618,345	14.20 Ac.
Phase-2 Common Area:	286,954	6.59 Ac.
Phase-2 Right-of-way Area:	81,337	1.87 Ac.
Phase Total:	986,636	22.65 Ac.
PHASE 3	Area (sf)	
Phase-3 Residential Lot Area:	298,996	6.86 Ac.
Phase-3 Common Area:	241,688	5.55 Ac.
Phase-3 Right-of-way Area:	72,702	1.67 Ac.
Phase Total:	613,386	14.08 Ac.
Total Project Area:	**2,739,486**	62.89 Ac.

Built-Upon Area Data:		
PHASE 1	Area (sf)	
Phase-1 Residential Lots:	160,610	
Phase-1 Roadways:	66,771	
Phase-1 Sidewalks:	21,400	
Phase-1 Misc. Amenities:	10,610	
Phase Total:	259,391	5.95 Ac.
PHASE 2	Area (sf)	
Phase-2 Residential Lots:	170,045	
Phase-2 Roadways:	53,130	
Phase-2 Sidewalks:	17,525	
Phase-2 Misc. Amenities:	2,315	
Phase Total:	243,015	5.58 Ac.
PHASE 3	Area (sf)	
Phase-3 Residential Lots:	82,224	
Phase-3 Roadways:	49,196	
Phase-3 Sidewalks:	16,800	
Phase-3 Misc. Amenities:	6,850	
Phase Total:	155,070	3.56 Ac.
Total Built-Upon Area:	**657,476**	15.09 Ac.
% Built-Upon Area:	**24.00%**	



Attachment B

Certification Forms

The following blank Designer Certification forms are included and specific for this project:

- As-Built Permittee Certification
- As-Built Designer's Certification for Low Density Projects

A separate certification is required for each SCM. These blank certification forms may be copied and used, as needed, for each SCM and/or as a partial certification to address a section or phase of the project.

AS-BUILT PERMITTEE CERTIFICATION

I hereby state that I am the current permittee for the project named above, and I certify by my signature below, that the project meets the below listed Final Submittal Requirements found in NCAC 02H.1042(4) and the terms, conditions and provisions listed in the permit documents, plans and specifications on file with or provided to the Division.

☐ Check here if this is a partial certification. Section/phase/SCM #?_____

☐ Check here if this is part of a Fast Track As-built Package Submittal.

Printed Name_____Signature_____

I, _____, a Notary Public in the State of _____

County of _____, do hereby certify that _____

personally appeared before me this _____ day of _____, 20_____

and acknowledge the due execution of this as-built certification. (SEAL)

Witness my hand and official seal

_____

My commission expires _____

Permittee's Certification NCAC .1042(4)	Completed / Provided	N/A
A. DEED RESTRICTIONS / BUA RECORDS		
1. The deed restrictions and protective covenants have been recorded and contain the necessary language to ensure that the project is maintained consistent with the stormwater regulations and with the permit conditions.	Y or N	
2. A copy of the recorded deed restrictions and protective covenants has been provided to the Division.	Y or N	
3. Records which track the BUA on each lot are being kept. (See Note 1)	Y or N	
B. MAINTENANCE ACCESS		
1. The SCMs are accessible for inspection, maintenance and repair.	Y or N	
2. The access is a minimum of 10 feet wide.	Y or N	
3. The access extends to the nearest public right-of-way.	Y or N	
C. EASEMENTS		
1. The SCMs and the components of the runoff collection / conveyance system are located in recorded drainage easements.	Y or N	
2. A copy of the recorded plat(s) is provided.	Y or N	
D. SINGLE FAMILY RESIDENTIAL LOTS - Plats for residential lots that have an SCM include the following:	Y or N	
1. The specific location of the SCM on the lot.	Y or N	
2. A typical detail for the SCM.	Y or N	

3. A note that the SCM is required to meet stormwater regulations and that the lot owner is subject to enforcement action as set forth in NCGS 143 Article 21 if the SCM is removed, relocated or altered without prior approval.	Y or N	
E. OPERATION AND MAINTENANCE AGREEMENT	Y or N	
1. The O&M Agreement is referenced on the final recorded plat.	Y or N	
2. The O&M Agreement is recorded with the Register of Deeds and appears in the chain of title.	Y or N	
F. OPERATION AND MAINTENANCE PLAN – maintenance records are being kept in a known set location for each SCM and are available for review.	Y or N	
G. DESIGNER'S CERTIFICATION FORM – has been provided to the Division.	Y or N	

Note 1- Acceptable records include ARC approvals, as-built surveys, and county tax records.

Provide an explanation for every requirement that was not met, and for every "N/A" below. Attach additional sheets as needed.

AS-BUILT DESIGNER'S CERTIFICATION FOR LOW DENSITY PROJECTS

I hereby state that I am a licensed professional and I certify by my signature and seal below, that I have observed the construction of the project named above to the best of my abilities with all due care and diligence, and that the project meets all of the MDC found in 15A NCAC 02H.1003, in accordance with the permit documents, plans and specifications on file with or provided to the Division, except as noted on the "AS-BUILT" drawings, such that the intent of the stormwater rules and the general statutes has been preserved.

☐ Check here if this is a partial certification. Section or phase_____
☐ Check here if this is part of a Fast-Track As-Built Package Submittal per 15A NCAC 02H .1044(3).
☐ Check here if the Designer did not observe the construction but is certifying the project.
☐ Check here if pictures of the project are provided.

Printed Name_____Signature _____

NC Registration Number_____Date _____

SEAL:

Consultant's Mailing Address:

_____

City:_____State:_____ Zip:_____

Phone:(___) _____

Consultant's Email address:

_____

① Circle N if the as-built value differs from the Plan/permit. If N is circled, provide an explanation on page 3.
② N/E = Not Evaluated (provide explanation on page 2). ③N/A = Not Applicable to this project/plan.

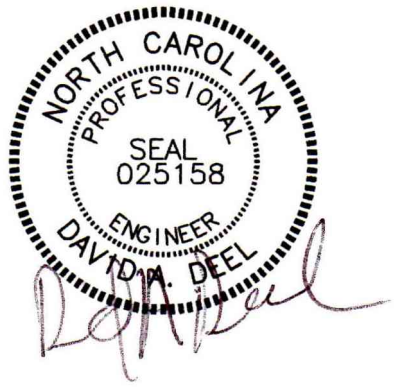
Consultant's Certification (MDC 15A NCAC 02H .1003)			
Project Density and Built-Upon Area	①As-built	②N/E	③N/A
1. The project has areas of high density based on natural drainage area boundaries, variations in land use or construction phasing.	Y or N		
2. The project's built-upon area does not exceed the maximum limit specified in the permit.	Y or N		
Dispersed Flow	①As-built	②N/E	③N/A
1. The project maximizes dispersed flow through vegetated areas and minimizes channelized flow.	Y or N		

Vegetated Conveyances	①As-built	②N/E	③N/A
1. Stormwater that is not released as dispersed flow is transported by vegetated conveyances.	Y or N		
2. The project has a minimal amount of non-vegetated conveyances to reduce erosion.	Y or N		
3. Other than minimal piping under driveways and roads, no piping has been added beyond what is shown on the approved plans.	Y or N		
4. Side slopes are no steeper than 3H:1V.	Y or N		
5. The conveyance does not erode in response to the peak flow from the 10-year storm.	Y or N		
Curb outlet systems (if applicable)	①As-built	②N/E	③N/A
1. The swale or vegetated area can carry the peak flow from the 10-year storm at a non-erosive velocity.	Y or N		
2. The longitudinal slope of the swale or vegetated areas does not excee 5%.	Y or N		
3. The swale has a trapezoidal cross-section and a minimum bottom wid of two feet.	Y or N		
4. The minimum length of the swale or vegetated area is 100 feet.	Y or N		
5. Side slopes are no steeper than 3H:1V.	Y or N		
6. The project utilizes treatment swales designed per Section .1061 in lieu of the curb outlet system requirements.	Y or N		
Vegetated Setbacks (if applicable)	①As-built	②N/E	③N/A
1. The width of the vegetated setback is at least 50'.	Y or N		
2. The width of the vegetated setback has been measured from the norm pool of impounded waters, the MHW line of tidal waters, or the top of bank of each side of rivers or streams.	Y or N		
3. The vegetated setback is maintained in grass or other vegetation.	Y or N		
4. BUA that meets the requirements of NCGS 143-214.7(b2)(2) is locate in the setback.	Y or N		
5. BUA that does NOT meet the requirements of NCGS 143-214.7(b2)(2) located within the setback and is limited to: • Publicly-funded linear projects (road, greenway, or sidewalk) • Water dependent structures • Minimal footprint uses such as poles, signs, utility appurtenances, and security lights.	Y or N		
6. The amount of BUA within the setback is minimized, and channeling of the runoff from the BUA has been avoided.	Y or N		

7. Stormwater is not discharged (via swale or pipe) through a vegetated setback. Stormwater is released at the edge of the setback and allowed to flow through the setback as dispersed flow.	Y or N		
Outlets	①As-built	②N/E	③N/A
1. Stormwater outlets do not cause erosion downslope of the discharge point during the peak flow from the 10-year storm.	Y or N		
Variations	①As-built	②N/E	③N/A
1. The project has variations from the MDC that were not previously approved. (Modification may be required.)	Y or N		
Deed restrictions (if applicable)	①As-built	②N/E	③N/A
1. Deed restrictions are recorded and ensure that the project and the BUA will be maintained in perpetuity consistent with the permit, approved plans, and specifications.	Y or N		
For Subdivisions Only (Residential or Commercial)	①As-built	②N/E	③N/A
1. The number of platted lots is consistent with the approved plans.	Y or N		
2. The project area is consistent with the approved plans.	Y or N		
3. The layout of the lots and streets is consistent with the approved plan.	Y or N		
4. The width / radius of streets, paved accesses, cul-de-sacs and sidewal is consistent with the approved plan.	Y or N		
5. No piping, other than those minimum amounts needed under a driveway or under a road, has been added.	Y or N		
6. The lot grading, road grading, vegetated conveyances, piping, inverts, and elevations are consistent with the approved plans.	Y or N		

Provide an explanation below for every MDC that was not met, and for every item marked "N/A" or "N/E." Attach additional pages as needed.

Stormwater Management Plan Narrative
Windswept Pines – Phase 3
Residential Subdivision
Moyock
Currituck County Submittal
May 24, 2024



General

The Windswept Pines Phase 3 project is a 14 lot addition to the existing Windswept Pines Residential Subdivision in Moyock, North Carolina. The project will be limited to a maximum of 24% Built-Upon-Area (BUA) and, accordingly, an NCDEQ Low Density Stormwater Permit has been acquired for this Project.

The "Windswept Pines" subdivision is located along the north side of Baxter Lane (SR1229), approx. 720' east of its intersection with Caratoke Hwy (NC 168), (36° 32'26.4723"N, -76°11'05.8659"W), in Moyock Township, Currituck County, North Carolina. The entire property totals 66.87 acres, however, a small 1.5 acre portion located between HWY 168 and the railroad, and a residual 2.5 acre lot adjacent to the entrance are not a part of the remaining 62.89 acre development plan for the subdivision. Phases 1 & 2 of the subdivision include 58 lots with infrastructure improvements that have been constructed in accordance with NCDEQ Permit requirements as well as Currituck County Peak Flow Mitigation Requirements. Two Stormwater Management Ponds were constructed between existing Phase 2 and the proposed Phase 3 developments and were intended to provide peak flow mitigation for both phases. This narrative and its supporting documents focus on Phase 3 of the development and demonstrate compliance of the proposed Phase 3 development.

Proposed developmental activities associated with Phase 3 include the following;

a) (14) 20,000 sf + single family residential home lots
b) 1,580 l.f.+/- of 27' wide asphalt subdivision roadways w/ curb and gutter
c) Utility Improvements
d) Sidewalk Improvements
e) Drainage and Stormwater Management Improvements

Summary of Existing Conditions

The Phase 3 project site consists of 14.08 acres of land located at the east end of Alden Run in the Windswept Pines Subdivision in Moyock, North Carolina. The Project Area currently consists of fallow open space and is bordered by ditches along the north and south property lines. The western boundary of Phase 3 is shared with Phase 2 and consists of two large existing interconnected stormwater management ponds with two outlet control structures, draining to the north and the south perimeter ditches. These ditches are part of an interconnected drainage system that drains to both Baxter Lane to the South, an unnamed farm ditch to the east, and a substantial unnamed farm ditch to the north. All three of these ditches drain to the Northwest River.

EPA SWMM Modeling of the existing conditions indicates that the flow is split between these outfalls, with approximately 60% of the peak flow (in the 10-yr rainfall event) draining to the north and east farm ditches.

Soils across the site consist primarily of fine sandy loam.

Summary of Proposed Conditions

The Windswept Pines, Phase 3 subdivision consists of a 14 lot addition to an existing residential subdivision, along with associated roadway and utility infrastructure on a 14.08 acre Phase of the subdivision. Runoff is proposed to be collected via a combination of curb and gutter and curb outlet swales then directed to a pair of existing stormwater ponds which were installed with Phase 2 of the subdivision in order to meet Currituck County's peak flow reduction requirements. The ponds will be increased in size as part of the Phase 3 construction. The total coverage (BUA) requested under the permit is 24.0% impervious coverage.

Post-construction runoff resulting from a 10-yr, 24 hr storm event will be retained and released at a peak flow rate which does not exceed the 2-yr, 24 hr peak runoff rate for the site in a theoretical wooded pre-development condition. Post-construction runoff resulting from a 100-yr, 24 hr storm event will be retained and released at a peak flow rate which does not exceed the actual calculated pre-construction 100-yr, 24 hr peak runoff rate for the site.

Stormwater Collection, Treatment, Storage and Disposal

The topography of the drainage area, existence of low permeability soils, and clearance to groundwater indicate that wet ponds would be the preferable Stormwater Control Measure to specify for this site. Runoff will be collected and treated in two existing interconnected wet ponds along the western edge of Phase 3. The existing Ponds will be enlarged as part of the Phase 3 improvements and the existing orifice / weir structures, which discharge to existing ditches along the northern and southern property lines, will remain unchanged.
.

Collection

The stormwater runoff will be collected and directed to the wet ponds via a combination of site grading, curb & gutter, storm piping, and curb outlet swales.

Treatment

The proposed system will offer several methods of stormwater runoff treatment prior to release. The majority of runoff from developed areas will flow overland to the collection system, providing initial filtration and opportunities for infiltration. The collection system is designed such that runoff is conveyed through vegetated swales either upstream or downstream of piped conveyances, providing treatment of runoff within the swales. The large pond system provides an additional treatment opportunity which is not typical of low-density designs. The primary purpose of the pond system is peak flow mitigation, but considerable water quality treatment will occur within the pond system prior to any runoff being allowed to leave the site.

Storage

Currituck County's Stormwater Ordinance requires that the runoff rate from the 10-yr, 24-hr storm in the post-construction condition not exceed the runoff rate from the 2-yr, 24-hr storm in the pre-construction, theoretical fully wooded condition. In order to demonstrate compliance and to adequately account for off-site, downstream factors, an EPA SWMM Model of the entire drainage shed and all three outfalls was utilized. The existing conditions model was previously approved as part of the Baxter Station stormwater management design and was modified within the boundaries of Windswept Ridge, Phase 3 in order to apply the 2-year, wooded condition theoretical conditions to the model. This model & peak mitigation design are discussed below.

Disposal

A small amount of the runoff will be infiltrated or be disposed of via infiltration and evapotranspiration. The primary source of disposal, however, will be via discharge to the three outfalls via the Outlet Control Structures.

Peak Flow Mitigation

Currituck County's Stormwater Ordinance requires that the runoff rate from the 10-yr, 24-hr storm in the post-construction condition not exceed the runoff rate from the 2-yr, 24-hr storm in the pre-construction, theoretical fully wooded condition. In order to demonstrate compliance and to adequately account for off-site, downstream factors and interconnection of outfalls via internal farm ditches, an EPA SWMM Model was constructed of the entire drainage shed.

Pre-development peak flow was calculated utilizing the NRCS (SCS) Method within EPA SWMM as per the Currituck Stormwater Ordinance. Due to the large number of drainage areas which were individually analyzed, the results are presented in excel spreadsheet format in the Appendix to this narrative rather than on the County's forms. Pre-development & post-development peak flows calculated for points of interest were as follows:

E065-E064	Substantial Farm Ditch draining to the north
E065A-E069	Farm Ditch draining to the east
E045-E041	Ditch draining to Baxter Lane to the south
E002-E001	Perimeter Ditch along southern property line (drains to E045-E041)

2yr-10yr Analysis (Currituck County Req'mt):

	2yr-10yr Pre (cfs)	10yr Post (cfs)
E065-E064	14.91	13.07
E065A-E069	16.59	17.05*
E045-E041	14.09	12.48
27-E047	11.06	10.65

100yr Analysis (Additional Flow Check):

	100yr Pre (cfs)	100yr Post (cfs)
E065-E064	35.77	27.62
E065A-E069	63.03	55.55
E045-E041	22.61	19.57
27-E047	30.76	23.12

*Peak flow within existing ditch E065-E069 is marginally increased in the post-construction 10-yr condition as compared to the pre-construction 2-yr wooded condition. This is the result of the addition of a perimeter ditch along the Phase 3 eastern property line. This ditch is being provided as a result of discussions with Currituck County in order to provide an additional flow route for waters from the rear of the northern lots along Baxter Lane. The project still complies with the 10-yr/2-yr peak flow mitigation requirement due to this small increase (0.46 cfs) being offset by substantial decreases (3.86 cfs) in the other ditches draining from the subject property. Put another way, the sum total of the peak flows from Phase 3 in the pre-construction, 2-yr, wooded condition is 56.65 cfs and the sum total of the peak flows from Phase 3 in the post-construction 10-yr, developed condition is 53.25 cfs.

Soils

Information collected on site indicates that the soils found throughout this site are composed primarily of fine sandy loam. These soil types will have very low to moderate permeability. These findings generally correlate with the description mapped and discussed in the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Currituck County, North Carolina, which map the soil for this site as follows:

RoA – Roanoke silt loam, Permeability is very low to moderately high

A soils report has been included in the appendix of this narrative. Water levels in the proposed Wet Ponds will be regulated via the weir structures.

Calculations

A set of Drainage Area Tabulations & EPA SWMM Model Report can be found within appendix portion of this narrative.

A summary of EPA SWMM Model Results for the two rainfall events are as follows:

Pre-Construction / Post-construction Flow Analysis:

2yr-10yr Analysis (Currituck County Req'mt):

	2yr-10yr Pre (cfs)	10yr Post (cfs)
E065-E064	14.91	13.07
E065A-E069	16.59	17.05*
E045-E041	14.09	12.48
27-E047	11.06	10.65

100yr Analysis (Additional Flow Check):

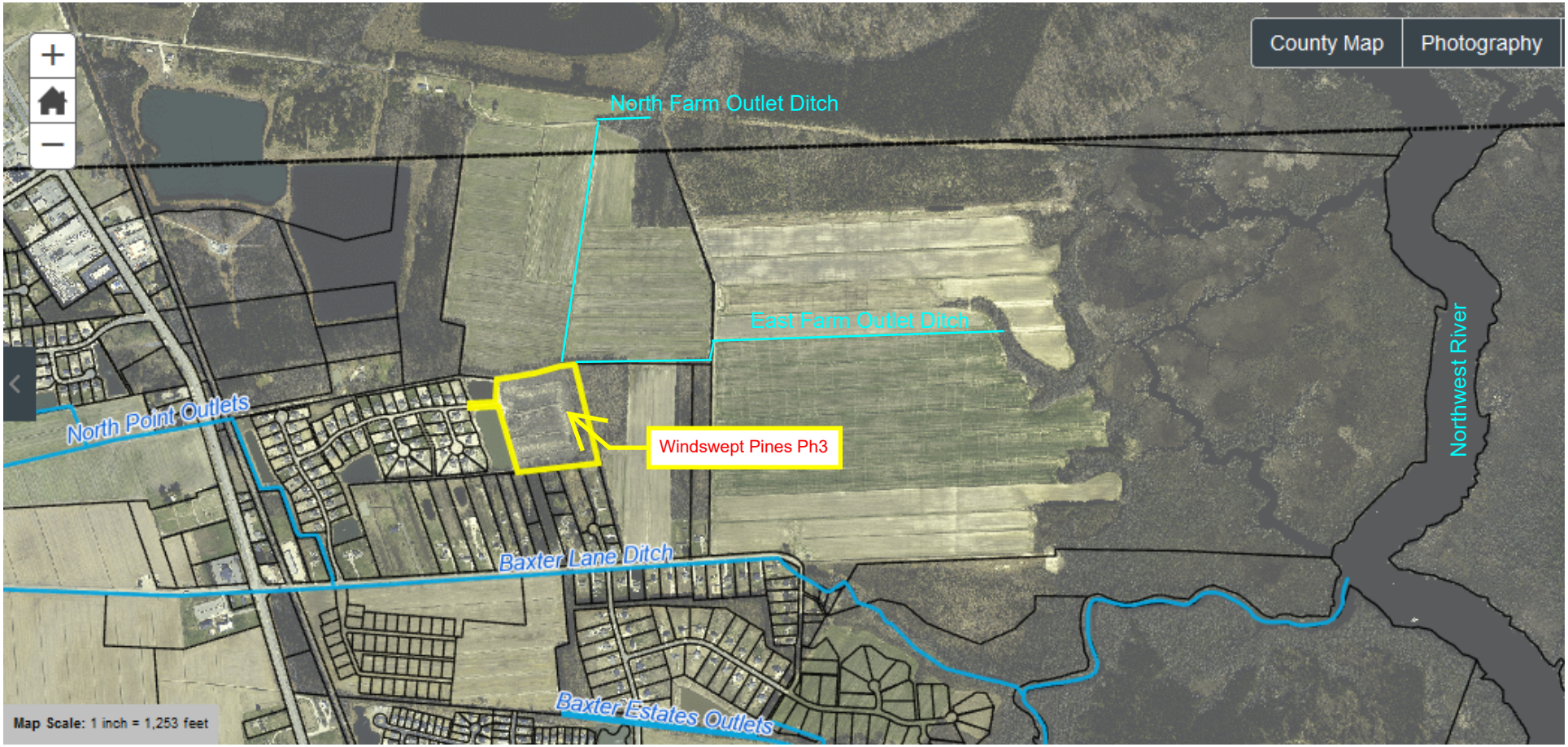
	100yr Pre (cfs)	100yr Post (cfs)
E065-E064	35.77	27.62
E065A-E069	63.03	55.55
E045-E041	22.61	19.57
27-E047	30.76	23.12

Conclusions

The proposed stormwater management plan for this site will handle the difference in runoff between the pre-development 2-yr, 24hr and the post-development 10-yr, 24 hr storm events, as prescribed by the Currituck County Stormwater Management Ordinance. Additionally, the design mitigates peak flows from the 100-yr, 24 hr storm events.

This proposed design will more than adequately serve the stormwater management requirements of this site.

APPENDIX A
Aerial GIS Imagery


County Map
Photography
North Farm Outlet Ditch
East Farm Outlet Ditch
Northwest River
North Point Outlets
Windswept Pines Ph3
Baxter Lane Ditch
Baxter Estates Outlets
Map Scale: 1 inch = 1,253 feet

APPENDIX B
Protocol Sampling Soils Report

4114 Laurel Ridge Drive
Raleigh, North Carolina 27612

Protocol Sampling Service, Inc.
"Experts in Environmental Compliance"

(919) 210-6547

Protocolsampling@yahoo.com
Environmentalservicesnc.com

June 29, 2016

Mr. David M. Klebitz, P.E.
Bissell Professional Group, Inc.
Post Office Box 1068
Kitty Hawk, North Carolina 27949

Re: Storm Water Management Soil Investigation
Stormwater BMPs
Windswept Pines
NC Highway 168
Moyock Township, Currituck County, North Carolina
Protocol Project #16-43

Dear Mr. Klebitz:

The following Soil Investigation is submitted to assist in a site assessment for storm water management wet detention ponds associated with the proposed Windswept Pines subdivision located along NC Highway 168, Moyock Township, Currituck County, North Carolina.

SITE HISTORY AND PHYSICAL CHARACTERISTICS

The tract is a currently undeveloped farmland and is surrounded by light residential and commercial development along the east side of NC Highway 168 in Moyock, North Carolina. Protocol Sampling Service, Inc. of Raleigh, North Carolina was hired to perform an investigation to identify the depth to seasonal high water table, if any restrictive layers are present in the proposed location of the storm water improvements and determine subsurface permeabilities. Surface elevations range from 7 to 9+ feet msl across the study area.

SOIL INVESTIGATION

The field survey was conducted on June 8, 2016. Five (5) soil borings were advanced to 60 inches below land surface (bls) with a hand auger within the proposed locations of the four (4) proposed constructed wet detention ponds. Stormwater Pond "1" is located in the northwest corner of the project parallel with NC Highway 168, Stormwater Pond "2" is located in the center of the project, Stormwater Pond "3" is located in the southern portion of the project and will be expanded from an existing pond and Stormwater Pond "4" is located in the eastern, wooded portion of the project. Soil color was determined with a Munsell Soil Color Chart. The presence of fill or other disturbances, the depth to the seasonal high water table, soil structure and consistence were noted. All boring locations were marked in the field using the Site Plan as a guide. The borings were also checked for reduced colors, an anaerobic smell or obvious soil wetness/static water table depth.

FINDINGS - Soil

- The study areas on the subject property contain soil belonging to the Gertie fine sandy loam soil series. The Gertie soil is a fine, mixed, semiactive, thermic Typic Endoaquults and is considered poorly drained with a seasonal high water table found between 0 and 1 foot below land surface.

- The soil was found to have an apparent depth to seasonal high water table at 16-inches bls in all soil borings. Static water levels were found from 17 to 18-inches bls in the soil borings at an estimated elevation of 7.0'-msl.

- A loamy fine sand/fine sand layer was encountered at depths ranging from 36-54-inches in the proposed constructed wet detention ponds.

- A drainage ditch that ranges from 0.75 to 2.0-feet deep which runs along the project boundary and through the center of the project controls surface drainage and could control subsurface drainage if it is deepened to intersect with the permeable sand layer found at depths ranging from 36 to 54-inches below land surface (bls).

- The soil boring advanced in BMP #4 revealed a fine to medium sand from 36" bls to 72" bls where a fine to medium sand with 20% shell hash was found to a final depth of 84" bls where cave-in prevented the deepening of the boring.

FINDINGS - Conductivity

- In-situ testing was not possible due to high static water table elevations.

- Infiltration and percolation rates through the subsurface sands can be expected to exceed 0.5-inches/hour once the restrictive clay soil is removed from the Stormwater Ponds. The SHWT elevations should stabilize slightly below the surface elevation of the existing pond at 7.0'due to drainage effect of the permeable sand layer.

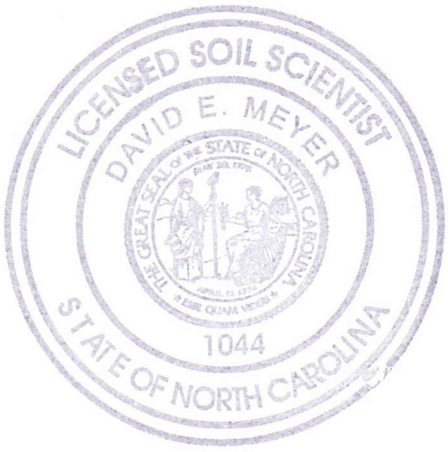
The findings presented herein are based on the site conditions observed during performance of the field survey on June 8, 2016.

Please call me at (919) 210-6547 if you have any questions or need further assistance.

Sincerely,
Protocol Sampling Service, Inc.

David E. Meyer, N.C.L.S.S.
President

cc: Justin M. Old
file



REVISIONS	WINDSWEPT PINES	STORMWATER MANAGEMENT AND DRAINAGE PLAN	BISSELL Professional Group
	MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA		
	PRELIMINARY SUBDIVISION PLANS		

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT # 4558

SHEET 4 OF 7

Soil Profile Description
Windswept Pines – Profile 1

Ap 0 – 6 inches; very dark brown (10YR 2/2) silt loam; granular; friable.

Btg1 6 – 15 inches; brown (10YR 4/3) sandy clay loam; subangular blocky; friable.

Btg2 15 - 38 inches; light brownish gray (2.5Y 6/2) silty clay loam; subangular blocky; firm with many, prominent strong brown (7.5YR 5/6) concentrations.

2C 38 – 60+ inches; light brownish gray (2.5Y 6/2) fine to medium sand; single grained; loose.

Soil Series: Gertie
Landscape: Coastal Plain
Landform: flood plain, broad flats
Parent Material: Marine sediments
Drainage Class: Poorly
Particle Size Class: clayey
Temperature Regime: thermic
Subgroup Classification: Typic Endoaquults
Examination Method: auger boring
Date: June 8, 2016
Weather: 85◦ and overcast, rain within previous 24 hours
Investigator: David Meyer
Shwt: 16”
Measured water table depth: 18.0” bls June 8, 2016
(ditch controlled)

Soil Profile Description
Windswept Pines – Profile 2

Ap 0 – 6 inches; very dark brown (10YR 2/2) silt loam; granular; friable.

Btg1 6 – 15 inches; brown (10YR 4/3) sandy clay loam; subangular blocky; friable.

Btg2 15 - 42 inches; light brownish gray (2.5Y 6/2) silty clay loam; subangular blocky; firm with many, prominent strong brown (7.5YR 5/6) concentrations.

2C 42 – 60+ inches; light brownish gray (2.5Y 6/2) fine to medium sand; single grained; loose.

Soil Series: Gertie
Landscape: Coastal Plain
Landform: flood plain, broad flats
Parent Material: Marine sediments
Drainage Class: Poorly
Particle Size Class: clayey
Temperature Regime: thermic
Subgroup Classification: Typic Endoaquults
Examination Method: auger boring
Date: June 8, 2016
Weather: 85◦ and overcast, rain within previous 24 hours
Investigator: David Meyer
Shwt: 16"
Measured water table depth: 18.0" bls June 8, 2016
(ditch controlled)

Soil Profile Description
Windswept Pines – Profile 3

Ap 0 – 6 inches; very dark brown (10YR 2/2) silt loam; granular; friable.

Btg1 6 – 15 inches; brown (10YR 4/3) sandy clay loam; subangular blocky; friable.

Btg2 15 - 54 inches; light brownish gray (2.5Y 6/2) silty clay loam; subangular blocky; firm with many, prominent strong brown (7.5YR 5/6) concentrations.

2C 54 – 60+ inches; light brownish gray (2.5Y 6/2) fine to medium sand, loamy fine sand; single grained & granular; loose & friable.

Soil Series: Gertie
Landscape: Coastal Plain
Landform: flood plain, broad flats
Parent Material: Marine sediments
Drainage Class: Poorly
Particle Size Class: clayey
Temperature Regime: thermic
Subgroup Classification: Typic Endoaquults
Examination Method: auger boring
Date: June 8, 2016
Weather: 85◦ and overcast, rain within previous 24 hours
Investigator: David Meyer
Shwt: 16"
Measured water table depth: 18.0" bls June 8, 2016
(ditch controlled)

Soil Profile Description
Windswept Pines – Profile 4

Ap 0 – 6 inches; very dark brown (10YR 2/2) silt loam; granular; friable.

Btg1 6 – 15 inches; brown (10YR 4/3) sandy clay loam; subangular blocky; friable.

Btg2 15 - 36 inches; light brownish gray (2.5Y 6/2) silty clay loam; subangular blocky; firm with many, prominent strong brown (7.5YR 5/6) concentrations.

2Cg 36 – 72 inches; light brownish gray (2.5Y 6/2) fine to medium sand, single grained; loose.

3Cg 72 – 84 inches; light brownish gray (2.5Y 6/2) fine to medium sand with 25% shell hash, single grained; loose.

Soil Series: Gertie
Landscape: Coastal Plain
Landform: flood plain, broad flats
Parent Material: Marine sediments
Drainage Class: Poorly
Particle Size Class: clayey
Temperature Regime: thermic
Subgroup Classification: Typic Endoaquults
Examination Method: auger boring
Date: June 8, 2016
Weather: 85◦ and overcast, rain within previous 24 hours
Investigator: David Meyer
Shwt: 16”
Measured water table depth: 18.0” bls June 8, 2016
(ditch controlled)
Cave-in at -84”

APPENDIX C

Subdivision Covenants / Operation & Maintenance Requirements

Doc No: 336689
Recorded: 06/18/2018 04:33:04 PM
Fee Amt: $26.00 Page 1 of 12

Currituck County North Carolina
Denise A. Hall, Register of Deeds
BK **1448** PG **110 - 121 (12)**

Prepared by: Allied Properties, LLC

NORTH CAROLINA
CURRITUCK COUNTY

RESTRICTIVE COVENANTS

WINDSWEPT PINES

KNOW ALL MEN BY THESE PRESENTS:

That ALLIED PROPERTIES LLC., herein sometimes collectively referred to as "Developer", do hereby covenant and agree to and with all other persons, firms or corporations hereafter acquiring Lots 1 through 12 AND Lots 42 through 58 as shown on a certain plat prepared by Bissell Professional Group entitled in part: "WINDSWEPT PINES, PHASE 1, MOYOCK TOWNSHIP, CURRITUCK COUNTY, NORTH CAROLINA" recorded in Plat Cabinet P, Slides 113 through 116, shall be subject to the following restrictions as to the use thereof running with the properties by whomsoever owned, to wit:

1. PURPOSE: All lots shall be used for residential purposes only. No building shall be erected, altered, placed upon or permitted to remain on any lot other than one detached single family dwelling not to exceed two and one-half stories in height and one private garage for not more than three cars. However, it shall not be considered a violation of this restriction if any builder or developer maintains sample houses, warehouses, sales and administrative offices on any of the properties so long as such builder has properties for sale or is servicing properties under warranties within the boundaries of adjoining property owned by the developer.

2. MINIMUM SQUARE FOOTAGE: No single story dwelling shall be constructed or allowed to remain on said lots having less than 1,300 square feet or floor space in heated areas, exclusive of porches, exterior storage and attached garages. No two story dwelling shall be constructed or allowed to remain on any lot having less than 1,600 square feet in

Prepared by: Allied Properties, LLC

NORTH CAROLINA
CURRITUCK COUNTY

RESTRICTIVE COVENANTS

WINDSWEPT PINES

KNOW ALL MEN BY THESE PRESENTS:

That ALLIED PROPERTIES LLC., herein sometimes collectively referred to as "Developer", do hereby covenant and agree to and with all other persons, firms or corporations hereafter acquiring Lots 1 through 12 AND Lots 42 through 58 as shown on a certain plat prepared by Bissell Professional Group entitled in part: "WINDSWEPT PINES, PHASE 1, MOYOCK TOWNSHIP, CURRITUCK COUNTY, NORTH CAROLINA" recorded in Plat Cabinet P, Slides 113 through 116, shall be subject to the following restrictions as to the use thereof running with the properties by whomsoever owned, to wit:

1. PURPOSE: All lots shall be used for residential purposes only. No building shall be erected, altered, placed upon or permitted to remain on any lot other than one detached single family dwelling not to exceed two and one-half stories in height and one private garage for not more than three cars. However, it shall not be considered a violation of this restriction if any builder or developer maintains sample houses, warehouses, sales and administrative offices on any of the properties so long as such builder has properties for sale or is servicing properties under warranties within the boundaries of adjoining property owned by the developer.

2. MINIMUM SQUARE FOOTAGE: No single story dwelling shall be constructed or allowed to remain on said lots having less than 1,300 square feet or floor space in heated areas, exclusive of porches, exterior storage and attached garages. No two story dwelling shall be constructed or allowed to remain on any lot having less than 1,600 square feet in

heated areas, exclusive to porches, exterior storage and attached garages. All dwellings shall have a garage of sufficient size to accommodate at least one standard size automobile. If the garage is a detached garage, it shall be constructed of the same exterior building materials as the principal residence.

3. SETBACK REQUIREMENTS FOR SINGLE FAMILY DWELLING: Building setbacks shall comply with those shown on the recorded plat for the subdivision.

4. SETBACK REQUIREMENTS FOR PRIVATE GARAGE: All private garages shall comply with street setback set forth in Article 3 but shall be required to observe only ten (10) foot setback from rear and side boundary lines. All private, freestanding garages shall be required to maintain a ten (10) foot setback from the principal dwelling.

5. RESUBDIVISION OF LOTS: No lot shall be subdivided into a lot having less than the dimensions of the original lot. However nothing herein contained will prevent a lot being subdivided and combined with an adjoining lot to form one residential unit. If such a division were to occur the title to the portion of the divided lot could pass only when conveyed with the lot with which it was combined. In the event of a division of a lot as herein provided or the combination of two or more lots, the side lot building setbacks would apply to the outside boundaries of the resulting lot.

6. NO OFFENSIVE ACTIVITY: No noxious or offensive activity shall be carried on or conducted upon the lots nor shall anything be done thereon which may become and annoyance or nuisance to the neighborhood. The discharging of firearms within the subdivision is specifically prohibited unless for the protection of person or property.

7. LOT MAINTENANCE: Each lot owner shall keep lots free of tall grasses, dead trees, trash and rubbish and shall properly maintain the lot, so as to present a well kept appearance.

8. ANIMALS: No animals may be kept on any lot except the usual household pets, so long as they are not kept for breeding or any other commercial purposes.

9. CONSTRUCTION ON LOT: No mobile home, trailer, doublewide mobile home, prefabricated home, modular home or preexisting home of any type, kind or description shall be placed upon or allowed to remain on any lot of the subdivision lots. It being the express intent of this provision that all dwellings and private garages be constructed on the site.

10. TEMPORARY STRUCTURES: No structure of a temporary character shall be placed upon any portion of any lot. Temporary shelters, tents, travel trailers, campers or self-propelled mobile homes shall not at any time be used as temporary residence. Campers, travel trailers, boat trailers, self-propelled mobile homes and other vehicles of that nature may be stored on a lot, provided they do not constitute a visual nuisance and are stored in compliance with the setback requirements of Articles 4 and 5 on a lot with an existing dwelling.

11. TIME OF CONSTRUCTION: Any construction of a dwelling or private garage situated

on any lot shall be completed within one year of the date of the commencement of construction.

12. SIGNS: No signs of any kind shall be displayed to public view on any lot except a sign of not more than 6 square feet advertising the property for sale or rent or signs used by a contractor during the construction period. This provision shall not apply to the developers for a period of eighteen months after the recordation of the subdivision plat.

13. UTILITIES: All telephone, electric and other like utility lines and connections between the main utility lines and residences shall be underground.

14. PROPERTY OWNERS ASSOCIATION MEMBERSHIP: The owners of the lots within the Subdivision are required to become members of the Windswept Pines Association, Inc. (the "Association"), a non-profit corporation that has been formed pursuant to the Non-Profit Corporation Act (Chapter 55A) of the North Carolina General Statutes through the office of The Secretary of State of North Carolina. The lot owners shall be subject to the rules, regulations and by-laws adopted by the Association including the levying of assessments for the purpose of maintaining common areas, common features, and infrastructure elements. The Board of Directors of the Association shall be appointed by the Developer until such time as the Developer transfers maintenance responsibility of the common areas, common facilities and open space areas, roadways and other infrastructure of the Subdivision as hereinafter delineated. Each lot owner shall be a member of the Association automatically with the purchase of any lot and agree with respect to the Association as follows:

    a. That for so long as each is an owner of a lot within the Subdivision, each will perform all acts necessary to remain in good and current standing as a member of the Association.
    b. That each shall be subject to the rules and regulations of the Association with regard to ownership of a lot within the Subdivision.
    c. That any unpaid assessment levied by the Association in accordance with these covenants, the articles of organization or bylaws of the Association shall be a lien upon the lot upon which such assessment was levied, and shall be the personal obligation of the owner of the lot at the time the assessment fell due.
    d. The initial monthly assessment shall be $36.00 per month. The Association may increase the amount of mandatory fees or assessments, when necessary, for the continued maintenance of common areas, common features, or private infrastructure.
    e. The Association shall establish a reserve fund to support the continued maintenance and upkeep of common areas, common features, and private infrastructure. All members of an association shall be responsible for contributions to the association's reserve

fund to cover their proportionate share of maintenance costs associated with common areas, common features, and private infrastructure, including the stormwater facilities.

f. There is hereby established an initial assessment in the amount of $1000 payable by builder upon the transfer of title of each lot, said assessment to be used for initial funding of the association's operating account and reserve fund.

g. The Association is responsible for liability insurance and all applicable taxes regarding the common areas, common features, and private infrastructure.

h. The Association has maintenance responsibilities of all on-site improvements not dedicated to a local or state agency, including but not limited to streets, drainage systems, water systems, open space areas, recreational facilities, and private infrastructure.

i. Each membership in the Association shall relate to and have a unity of interest with an individual lot, which may not be separated from ownership of said lot.

j. Upon any transfer of title of a Lot, the grantor in said conveyance shall pay a transfer assessment in an amount determined by the Association. The initial transfer fee shall be $95.00 until such time as changed by the Association.

The common areas, common facilities and open space areas, roadways and other infrastructure, including the stormwater facilities, shown and delineated on the plat of Windswept Pines described above and duly recorded in the Office of the Register of Deeds of Currituck County, are for the use and benefit of the lot owners of the subdivision. The Developer shall maintain the common areas, common facilities and open space areas, roadways and other infrastructure until seventy-five percent (75%) of the lots are sold.

Maintenance responsibility of the other common areas, common facilities and open space areas, roadways, and other infrastructure (infrastructure shall include roads and stormwater facilities within the Subdivision unless the same are dedicated to and accepted by the North Carolina Department of Transportation) of the Subdivision shall not be transferred from the Developer to the Association until all of the following occur:

(a) At least 75 percent of the total number of lots in the subdivision are sold; and
(b) The Developer provides an affidavit or resolution signed by the association president that accepts maintenance responsibility for the subdivision; and
(c) The Developer commissions a report prepared by a licensed engineer indicating that all common areas, common features, and infrastructure

elements comply with the minimum standards in the Currituck County Unified Development Ordinance and the County Code of Ordinances; and
(d) Currituck County staff reviews and approves the report prepared by a licensed engineer; and
(e) A reserve fund dedicated to the continued maintenance and upkeep of common areas, common features, and private infrastructure is established with a banking institution acceptable to the county in the name of the association, that contains a minimum balance that includes the following:

(a) Ten percent of the road construction cost for streets not maintained by NCDOT at the time of transfer (gravel base and asphalt only);
(b) Liability insurance and taxes for common elements for two years; and,
(c) Stormwater facilities and landscaping maintenance cost for two years;

Notwithstanding anything contained in these covenants to the contrary, the Developer may make application to turn over maintenance responsibility to the Association for common areas, common features, or private infrastructure prior to conveyance of 75 percent of the lots in the subdivision subject to the review by the Board of Commissioners. The Board of Commissioners, at the request of the Developer, shall waive the requirement upon a finding that the association has sufficient financial capacity to assume maintenance responsibility for common areas, common facilities, and private infrastructure.

Notwithstanding anything contained herein to the contrary, Developer or any lots owned by Developer shall not be liable for any assessments as long as the lots are owned by the Developer.

The Association shall have the legal authority and the responsibility to maintain control over all common areas, common features, and private infrastructure in the subdivision, following transfer of control by the Developer.

15. DRIVEWAYS: Prior to commencement of construction of improvements or clearing of any lot, other than by hand, the owner shall place a temporary or permanent driveway to provide entry to the lot from the road. All drives to be completed by the completion date of construction and are to be constructed of concrete.

16. SWIMMING POOLS: No above ground swimming pool shall be placed upon or allowed remaining on any lot.

17. SATELLITE DISHES: No satellite dishes having a diameter of more than 36 inches shall

be placed upon or allowed to remain on the lot.

18. FENCES: In order to retain the aesthetic qualities of the neighborhood, the following restrictions relating to fencing will be enforced:

a. On all lots other than corner lots, no fence shall be installed in front of the rear lines of any house, and those fences in locations where erection is permissible shall not be more than six (6) feet in height.

b. On all corner lots, no fence shall be installed in front of any rear line of any house nor shall any fence be installed closer to the side street curb than the side line of any house. All fence sections, where permissible, shall not exceed six (6) feet in height.

19. OUTSIDE STAIRWAYS: No outside stairways shall be permitted to the second floor or any structure constructed on any lot.

20. DRAINAGE AND STORMWATER MANAGEMENT: No lot owner shall block any ditches or other drainage areas.

Except as specifically otherwise provided in Section 14, the maintenance and upkeep of all Stormwater Facilities located on Association property shall be the responsibility of, and at the cost and expense of the Association. The Association shall assume the sole and exclusive duty, authority and responsibility to maintain, operate, repair and replace all stormwater management facilities (collectively the "Stormwater Facilities") required by the stormwater management plans approved by the Declarant, Currituck County, and other applicable governmental agencies having jurisdiction over the Stormwater Facilities. The "Stormwater Facilities" include swales (including property line swales), ditches, stormwater retention ponds including piping and outlet control structures, drainage piping, perforated underdrain piping, emergency drawdown structures, berms and associated vegetative cover. The Association shall maintain the Stormwater Facilities pursuant to the provisions of the N.C. Stormwater Management Permit Number SW7170605 issued for Windswept Pines – Phase 1, as issued by the North Carolina Department of Environmental Quality, Division of Energy, Mineral, and Land Resources under NCAC 15A 2H.0100 (hereinafter referred to as "DEQ"), the provisions of which are hereby incorporated by reference. The following covenants are intended to ensure ongoing compliance with this permit:

1. The State of North Carolina is made a beneficiary to these covenants to the extent necessary to maintain compliance with the Stormwater Management Permit.
2. These covenants are to run with the land and be binding on all persons and parties claiming under them.
3. The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the State of North Carolina, DEQ.
4. Alteration of the drainage as shown on the approved plans may not take place without the concurrence of the DEQ, Division of Energy, Mineral, and Land Resources.

5. The maximum built-upon area per lot is 24% (see attached table – Exhibit A). 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 pavement. Built-upon area includes, but is not limited to, structures, asphalt, concrete, gravel, brick, stone, slate, coquina and parking areas, but does not include raised, open wood decking, or the water surface area of swimming pools.
6. Filling in or piping or altering any 3:1 vegetative conveyances (ditches, swales, etc.) associated with the development except for average driveway crossings, is prohibited by any persons.
7. Each lot will maintain a 50 foot wide vegetated buffer between all impervious areas and surface waters, measured horizontally from and perpendicular to the normal pool of impounded structures, the top of bank of both sides of streams and rivers, and the mean high waterline of tidal waters. All runoff directed to and through the vegetative buffer must flow through the buffer in a diffuse manner.
8. Stormwater runoff that is directed to flow through any wetlands shall flow into and through the wetlands at a non-erosive velocity.
9. All roof drains shall terminate at least 50 feet from the normal pool of impounded structures, the top of bank of both sides of streams and rivers, and the mean high waterline of tidal waters.
10. Each designated curb outlet swale or 100' vegetated area shown on the approved plan must be maintained at a minimum of 100' long, maintain 3:1 (H:V) side slopes or flatter, have a longitudinal slope no steeper than 5%, carry the flow from a 10 year storm in a non-erosive manner, maintain a dense vegetated cover, and be located in either a dedicated common area or a recorded drainage easement.
11. Any individual or entity found to be in noncompliance with the provisions of a stormwater management permit or the requirements of the stormwater rules is subject to enforcement procedures as set forth in N.C.G.S. 143, Article 21.
12. Any other project-specific conditions and requirements contained in the Permit.

Currituck County Maintenance Requirements

1. The Declarant shall be responsible for the maintenance of stormwater management devices until maintenance responsibility is transferred to the stormwater association.
2. Stormwater management devices shall be maintained in accordance with the standards of Section 7 of the Currituck County Unified Development Ordinance, the Currituck County Stormwater Manual, and the approved stormwater plans.
3. The developer or association shall perform routine maintenance inspections of stormwater management devices using the Inspection Checklist included in the Currituck County Stormwater Manual.

   (a) Stormwater management devices that receive runoff from less than five acres shall be inspected at least once every three years.

(b) Stormwater management devices that receive runoff from more than five acres shall be inspected annually by a registered engineer, licensed surveyor or landscape architect.

4. The Planning Director may request copies of inspection checklists or conduct inspections of stormwater management devices in accordance with U.D.O Section 9.5.3, Inspections. Failure to maintain stormwater management devices is a violation of this Ordinance subject to the remedies and penalties in U.D.O Chapter 9: Enforcement.

Stormwater Outlet Control Structures are considered part of the Stormwater Facilities and shall be operated and maintained by the Association in accordance with the provisions set forth in this Declaration and more specifically the following:

(a) Structure Operations.

1. The Outlet Control Structures containing the stormwater control weirs require no operation beyond general maintenance as outlined in the following Structure Maintenance section.

2. Modifications to the Structures shall not be performed unless otherwise designed by an Engineer and approved by the State of North Carolina Department of Environmental Quality, Currituck County and the Stormwater Association.

(b) Structure Maintenance.

1. Frequency of structure inspections shall coincide with those outlined for all Stormwater Facilities.
2. The overall structure shall be reviewed for structural soundness and adequately repaired as necessary without making a modification, unless otherwise approved.
3. Pipe connections shall be reviewed for soundness and soil tightness and adequately repaired as necessary.
4. Weirs, inlets, pipe connections and trash racks shall be cleared and cleaned of debris, blockages and sediment accumulation.

The Association shall establish and maintain a reserve fund to support the continued maintenance and upkeep of common areas, common features, and private infrastructure. All members of an association shall be responsible for contributions to the association's reserve fund to cover their proportionate share of maintenance costs associated with common areas, common features, and private infrastructure, including the

Stormwater Facilities.

(c) Easements. There is hereby granted and conveyed to the Association an easement upon, over, under and across all of the Stormwater Facilities as shown on the recorded plat, as same may be amended by recorded amendments to said plat, for the purpose of installing, replacing, maintaining and operating the Stormwater Facilities. There is also hereby granted to the Association an easement on, over and across the Stormwater Facilities for the purpose of taking any action necessary to effect compliance with environmental rules, regulations, procedures promulgated or instituted by the Association or by any governmental entity having jurisdiction over the Stormwater Facilities.

21. SIDEWALKS & LANDSCAPING: Lots will have sidewalks, planted street trees and lawns seeded by the Builders. Sidewalks & street trees including species selected must be placed in accordance with county approved development plans and construction details.

22. AMENDMENTS: Developer reserves the right to amend these covenants for any reason satisfactory to the Developer at anytime within three (3) years of the date of recordation of the covenants.

23. WATER TAP FEE: The water tap fee required by Currituck County for the connection to the Currituck County Water System is the sole responsibility of the party desiring the service and is not the responsibility of the developer.

These covenants are to run with the land and shall be binding on all parties and all persons claiming under them for a period of twenty years (20) from the date these covenants are recorded, after which time the covenants shall automatically be extended for a period of ten (10) years at the expiration of the then current period.

Any owner of the lots within said subdivision shall have the right to enforce these covenants and restrictions by proceedings at law or in equity against any person or persons violating or attempting to violate any covenant or restriction whether such action is to restrain the violation of said covenant or restriction or to recover damages.

Invalidation of any of these covenants by judgment or court order shall in no way affect any of the other provisions and the other covenants shall remain in full force and effect.

IN TESTIMONY WHEREFORE, Developers have hereunto set their hand and seal, this the 12th day of June, 2018.

ALLIED PROPERTTIES, LLC

By: _____(SEAL)
Justin Old, Manager

STATE OF NORTH CAROLINA
COUNTY/CITY OF CURRITUCK

I, Tracy Jo Jones, a Notary Public do hereby certify that Justin Old, Manager of ALLIED PROPERTIES, LLC personally appeared before me this day and acknowledged the due execution of the foregoing instrument on behalf of ALLIED PROPERTIES, LLC and that by authority duly given and as an act of the entity, (s)he signed the foregoing instrument in its name on its behalf as its act and deed for the purposes therein expressed.

Witness my hand and official stamp or seal this 12th day of June, 2018.

AFFIX NOTARY SEAL

_____(Seal)
Notary Public

My commission expires:

10/29/2022

TRACY JO JONES
Notary Public
Camden County
NORTH CAROLINA

Residential Subdivision **Deed Restriction Calculations**

EXHIBIT A

1	20,016	5,504
2	20,028	5,508
3	20,023	5,506
4	20,014	5,504
5	20,070	5,519
6	20,036	5,510
7	20,000	5,500
8	20,001	5,500
9	20,106	5,529
10	20,003	5,501
11	20,001	5,500
12	20,005	5,501
42	20,030	5,508
43	20,015	5,504
44	20,000	5,500
45	20,000	5,500
46	20,683	5,688
47	20,023	5,506
48	20,000	5,500
49	20,118	5,532
50	20,000	5,500
51	20,035	5,510
52	21,774	5,988
53	20,476	5,631
54	20,125	5,534
55	20,022	5,506
56	20,016	5,504
57	20,251	5,569
58	20,167	5,546

Project Area Data:

	Area (sf)	
Total Property Area:	2,804,034	64.37 Ac.
Total Property Area Not a Part:	720,618	16.54 Ac.
Total Project Area:	2,083,416	47.83 Ac.

	Area (sf)	
Total Residential Lot Area:	584,038	13.41 Ac.
Total Common Area:	1,399,847	32.14 Ac.
Total Right-of-way Area:	99,531	2.28 Ac.
Total Project Area:	2,083,416	47.83 Ac.

Built-Upon Area Data:

	Area (sf)	
Residential Lots:	160,610	
Roadways:	66,771	
Sidewalks:	21,400	
Misc. Amenities:	10,610	
Total Built-Upon Area:	259,391	5.95 Ac.
% Built-Upon Area:	**12.45%**	

NORTH CAROLINA PROFESSIONAL SEAL 039 ENGINEER DAVID M. KLEBITZ

APPENDIX D
Drainage Area Tabulations

(Printed copies included in this appendix only represent the Drainage Areas that have changed from the earlier approved Baxter Station EPA SWMM Model. Electronic copies of Baxter Station Drainage Area Tabulations are included in the electronic submissions)

Land Use	CN
Wooded (Soils Type C)(Good Condition)	70
Open Space (Soils Type C) (Good Condition)	74
Fields (Soils Type C, Meadows, Good)	71
Res Lot (30% Coverage, C Soils)	81.2
Res Lot (10% Coverage, C Soils)	76.4
Res Lot (27.5% Coverage, C Soils)	80.6
Impervious	98

Wooded (Soils Type B)(Good Condition)	55
Open Space (Soils Type B) (Good Condition)	61
Fields (Soils Type B, Meadows, Good)	58

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-BIS-29 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	70
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	1.31	56977	Connected Impervious:	
Wooded	C Soils	70	2.04	88920	Area Ac. / Area SF / % of DA	
	CN SubTotal		3.35	145897	0.00 / 0 / 0.00	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	3.35	145897	148597

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	180	S=	4.2	Ia=	0.84	810.54
Elev Up	7.4	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.3 Hours			
Slope % = Y	0.50	Tc =	15.1 Minutes			
CN =	70					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-E065 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	71
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	14.71	640627	Connected Impervious:	
Wooded	C Soils	70	4.20	182942	Area Ac. / Area SF / % of DA	
	CN SubTotal		18.91	823569	0.00 / 0 / 0.00	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	18.91	823569	823569

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	410	S=	4.1	Ia=	0.83	2008.70
Elev Up	7.8	Lag =	0.4 Hours			
Elev Dn (Inv)	6.5	Tc =	0.6 Hours			
Slope % = Y	0.32	Tc =	36.1 Minutes			
CN =	71					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-BIS-27 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.04	1697	Weighted CN =	72
Open Space	C Soils	74	2.34	102095		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	3.49	151823	Area Ac. Area SF	% of DA
	CN SubTotal		5.87	255615	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	5.87	255615	255615

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	296	S=	3.9	Ia=	0.79	863.56
Elev Up	7.8	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.4 Hours			
Slope % = Y	0.44	Tc =	23.0 Minutes			
CN =	72					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-E045 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.05	2352	Weighted CN =	72
Open Space	C Soils	74	1.85	80412		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	2.30	100203	Area Ac. Area SF	% of DA
	CN SubTotal		4.20	182967	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.20	182967	182967

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	296	S=	3.9	Ia=	0.77	618.13
Elev Up	7.8	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.4 Hours			
Slope % = Y	0.44	Tc =	22.8 Minutes			
CN =	72					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-BIS-29 (Portion of DA within Ph3)

		CN	Area Ac.	Area SF			
Impervious - Disconnected		98	0.00	0	Weighted CN =	74	
Open Space	C Soils	74	1.99	86483			
Fields	C Soils	71	0.00	0	Connected Impervious:		
Wooded	C Soils	70	0.00	0	Area Ac.	Area SF	% of DA
	CN SubTotal		1.99	86483	0.00	0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:		
Area Ac	Area SF	
1.99	86483	86483

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	200	S=	3.5	Ia=	0.70	432.42
Elev Up	7.2	Lag =	0.3 Hours			
Elev Dn (Inv)	7	Tc =	0.6 Hours			
Slope % = Y	0.10	Tc =	33.1 Minutes			
CN =	74					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-BIS-27 (Portion of DA within Ph3)

		CN	Area Ac.	Area SF			
Impervious - Disconnected		98	0.00	0	Weighted CN =	74	
Open Space	C Soils	74	2.68	116834			
Fields	C Soils	71	0.00	0	Connected Impervious:		
Wooded	C Soils	70	0.00	0	Area Ac.	Area SF	% of DA
	CN SubTotal		2.68	116834	0.00	0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:		
Area Ac	Area SF	
2.68	116834	116834

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	260	S=	3.5	Ia=	0.70	449.36
Elev Up	7.3	Lag =	0.4 Hours			
Elev Dn (Inv)	7	Tc =	0.6 Hours			
Slope % = Y	0.12	Tc =	38.0 Minutes			
CN =	74					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-E065 (Portion of DA within Ph3)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	73
Open Space	C Soils	74	3.73	162658		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	0.92	40070	Area Ac. Area SF	% of DA
	CN SubTotal		4.65	202728	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.65	202728	202728

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	390	S=	3.7	Ia=	0.73	519.82
Elev Up	7.4	Lag =	0.6 Hours			
Elev Dn (Inv)	7	Tc =	1.0 Hours			
Slope % = Y	0.10	Tc =	57.1 Minutes			
CN =	73					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-E045 (Portion of DA within Ph3)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	73
Open Space	C Soils	74	3.29	143204		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	1.46	63738	Area Ac. Area SF	% of DA
	CN SubTotal		4.75	206942	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.75	206942	206942

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	400	S=	3.7	Ia=	0.75	517.36
Elev Up	7.4	Lag =	0.6 Hours			
Elev Dn (Inv)	7	Tc =	1.0 Hours			
Slope % = Y	0.10	Tc =	59.7 Minutes			
CN =	73					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-BIS-29 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	70
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	1.31	56977	Connected Impervious:	
Wooded	C Soils	70	2.04	88920	Area Ac. / Area SF / % of DA	
	CN SubTotal		3.35	145897	0.00 / 0 / 0.00	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	3.35	145897	148597

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	180	S=	4.2	Ia=	0.84	810.54
Elev Up	7.4	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.3 Hours			
Slope % = Y	0.50	Tc =	15.1 Minutes			
CN =	70					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-E065 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	71
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	14.71	640627	Connected Impervious:	
Wooded	C Soils	70	4.20	182942	Area Ac. / Area SF / % of DA	
	CN SubTotal		18.91	823569	0.00 / 0 / 0.00	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	18.91	823569	823569

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	410	S=	4.1	Ia=	0.83	2008.70
Elev Up	7.8	Lag =	0.4 Hours			
Elev Dn (Inv)	6.5	Tc =	0.6 Hours			
Slope % = Y	0.32	Tc =	36.1 Minutes			
CN =	71					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-BIS-27 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.04	1697	Weighted CN =	72
Open Space	C Soils	74	2.34	102095		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	3.49	151823	Area Ac. Area SF	% of DA
	CN SubTotal		5.87	255615	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	5.87	255615	255615

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	296	S=	3.9	Ia=	0.79	863.56
Elev Up	7.8	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.4 Hours			
Slope % = Y	0.44	Tc =	23.0 Minutes			
CN =	72					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-E045 (Modified from Previous Models to account for Ph3 PL)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.05	2352	Weighted CN =	72
Open Space	C Soils	74	1.85	80412		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	2.30	100203	Area Ac. Area SF	% of DA
	CN SubTotal		4.20	182967	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.20	182967	182967

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	296	S=	3.9	Ia=	0.77	618.13
Elev Up	7.8	Lag =	0.2 Hours			
Elev Dn (Inv)	6.5	Tc =	0.4 Hours			
Slope % = Y	0.44	Tc =	22.8 Minutes			
CN =	72					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-BIS-29 (Portion of DA within Ph3 - woode for 2yr/10yr analysis)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	70
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	1.99	86483	Area Ac. Area SF	% of DA
	CN SubTotal		1.99	86483	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	1.99	86483	86483

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	200	S=	4.3	Ia=	0.86	432.42
Elev Up	7.2	Lag =	0.4 Hours			
Elev Dn (Inv)	7	Tc =	0.6 Hours			
Slope % = Y	0.10	Tc =	37.0 Minutes			
CN =	70					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-BIS-27 (Portion of DA within Ph3 - woode for 2yr/10yr analysis)

		CN	Area Ac.	Area SF		
Impervious - Disconnected		98	0.00	0	Weighted CN =	70
Open Space	C Soils	74	0.00	0		
Fields	C Soils	71	0.00	0	Connected Impervious:	
Wooded	C Soils	70	2.68	116834	Area Ac. Area SF	% of DA
	CN SubTotal		2.68	116834	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	2.68	116834	116834

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	260	S=	4.3	Ia=	0.86	449.36
Elev Up	7.3	Lag =	0.4 Hours			
Elev Dn (Inv)	7	Tc =	0.7 Hours			
Slope % = Y	0.12	Tc =	42.5 Minutes			
CN =	70					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-E065 (Portion of DA within Ph3 - woode for 2yr/10yr analysis)

		CN	Area Ac.	Area SF			
Impervious - Disconnected		98	0.00	0	Weighted CN =	70	
Open Space	C Soils	74	0.00	0			
Fields	C Soils	71	0.00	0	Connected Impervious:		
Wooded	C Soils	70	4.65	202728	Area Ac.	Area SF	% of DA
	CN SubTotal		4.65	202728	0.00	0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.65	202728	202728

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	390	S=	4.3	Ia=	0.86	519.82
Elev Up	7.4	Lag =	0.6 Hours			
Elev Dn (Inv)	7	Tc =	1.0 Hours			
Slope % = Y	0.10	Tc =	62.3 Minutes			
CN =	70					

Existing Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA-WP3-E045 (Portion of DA within Ph3 - woode for 2yr/10yr analysis)

		CN	Area Ac.	Area SF			
Impervious - Disconnected		98	0.00	0	Weighted CN =	70	
Open Space	C Soils	74	0.00	0			
Fields	C Soils	71	0.00	0	Connected Impervious:		
Wooded	C Soils	70	4.75	206942	Area Ac.	Area SF	% of DA
	CN SubTotal		4.75	206942	0.00	0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	4.75	206942	206942

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	400	S=	4.3	Ia=	0.86	517.36
Elev Up	7.4	Lag =	0.6 Hours			
Elev Dn (Inv)	7	Tc =	1.1 Hours			
Slope % = Y	0.10	Tc =	64.4 Minutes			
CN =	70					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI22

		CN	Area Ac.	Area SF				
Impervious - Disconnecte		98	0.02	1050	Weighted CN =		85	
Open Space	C Soils	74	0.03	1269				
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:			
Wooded	C Soils	70	0.00	0	Area Ac.	Area SF	% of DA	
	CN SubTotal		0.05	2319	0.10	4267	64.79	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.15	6586	6586

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	11	S=	1.8	Ia=	0.36	210.82
Elev Up	9.82	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	0.5 Minutes			
CN =	85					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI24

		CN	Area Ac.	Area SF				
Impervious - Disconnecte		98	0.02	837	Weighted CN =		84	
Open Space	C Soils	74	0.03	1221				
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:			
Wooded	C Soils	70	0.00	0	Area Ac.	Area SF	% of DA	
	CN SubTotal		0.05	2058	0.10	4226	67.25	

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.14	6284	6284

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	11	S=	1.9	Ia=	0.39	187.09
Elev Up	9.82	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	0.5 Minutes			
CN =	84					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI25

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.04	1831	Weighted CN =	83
Open Space	C Soils	74	0.04	1586		
Lots - 27.5% Ir	C Soils	80.6	0.10	4490	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.18	7907	0.13 5460	40.85

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.31	13367	13367

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.0	Ia=	0.40	359.41
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	83					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI26

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.04	1928	Weighted CN =	83
Open Space	C Soils	74	0.04	1712		
Lots - 27.5% Ir	C Soils	80.6	0.10	4524	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.19	8164	0.15 6396	43.93

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.33	14560	14560

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.0	Ia=	0.40	371.09
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	83					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI27

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.02	1060	Weighted CN =	83
Open Space	C Soils	74	0.02	949		
Lots - 27.5% Ir	C Soils	80.6	0.09	3969	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.14	5978	0.08 3294	35.53

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.21	9272	9272

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.42	271.73
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	83					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI28

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.02	1048	Weighted CN =	82
Open Space	C Soils	74	0.03	1225		
Lots - 27.5% Ir	C Soils	80.6	0.08	3651	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.14	5924	0.08 3286	35.68

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.21	9210	9210

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.43	269.27
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	82					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI29

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.03	1487	Weighted CN =	83
Open Space	C Soils	74	0.03	1461		
Lots - 27.5% Ir	C Soils	80.6	0.10	4464	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.17	7412	0.08 3650	33.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.25	11062	11062

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.42	336.91
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	83					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI30

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.03	1490	Weighted CN =	83
Open Space	C Soils	74	0.03	1466		
Lots - 27.5% Ir	C Soils	80.6	0.10	4550	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.17	7506	0.08 3633	32.62

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.26	11139	11139

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.42	341.18
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	83					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI31

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.05	2352	Weighted CN =	82
Open Space	C Soils	74	0.04	1870		
Lots - 27.5% Ir	C Soils	80.6	0.26	11190	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.35	15412	0.17 7219	31.90

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.52	22631	22631

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.43	700.55
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	82					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-DI32

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.05	2347	Weighted CN =	82
Open Space	C Soils	74	0.04	1865		
Lots - 27.5% Ir	C Soils	80.6	0.26	11143	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.35	15355	0.17 7242	32.05

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.52	22597	22597

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	22	S=	2.1	Ia=	0.43	697.95
Elev Up	10.1	Lag =	0.0 Hours			
Elev Dn (Inv)	9.6	Tc =	0.0 Hours			
Slope % = Y	2.27	Tc =	0.9 Minutes			
CN =	82					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-003

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.00	0	Weighted CN =	81
Open Space	C Soils	74	0.01	282		
Lots - 27.5% Ir	C Soils	80.6	0.46	19941	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.46	20223	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.46	20223	20223

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	50	S=	2.4	Ia=	0.48	404.46
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9.2	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.0 Minutes			
CN =	81					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-004

		CN	Area Ac.	Area SF		
Impervious - Disconnecte		98	0.00	0	Weighted CN =	74
Open Space	C Soils	74	0.13	5668		
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:	
Wooded	C Soils	70	0.00	0	Area Ac. Area SF	% of DA
	CN SubTotal		0.13	5668	0.00 0	0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Total Drainage Area:

		Area Ac	Area SF	
Formula:	Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)	0.13	5668	5668

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	40	S=	3.5	Ia=	0.70	141.70
Elev Up	10	Lag =	0.0 Hours			
Elev Dn (Inv)	9.2	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.0 Minutes			
CN =	74					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-005

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 78
Open Space	C Soils	74	0.11	4787	
Lots - 27.5% Ir	C Soils	80.6	0.14	6078	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.25	10865	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
0.25 10865 10865

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.9	Ia=	0.57	181.08
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.5 Minutes			
CN =	78					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-006

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 77
Open Space	C Soils	74	0.15	6368	
Lots - 27.5% Ir	C Soils	80.6	0.16	6838	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.30	13206	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
0.30 13206 13206

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.9	Ia=	0.58	220.10
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.6 Minutes			
CN =	77					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-007

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 80
Open Space	C Soils	74	0.06	2397	
Lots - 27.5% Ir	C Soils	80.6	0.44	18990	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.49	21387	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
0.49 21387 21387

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.5	Ia=	0.50	356.45
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.4 Minutes			
CN =	80					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-008

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 78
Open Space	C Soils	74	0.43	18816	
Lots - 27.5% Ir	C Soils	80.6	0.73	31753	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		1.16	50569	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
1.16 50569 50569

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.8	Ia=	0.56	842.82
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.5 Minutes			
CN =	78					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-009

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 79
Open Space	C Soils	74	0.35	15299	
Lots - 27.5% Ir	C Soils	80.6	1.01	43981	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		1.36	59280	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
1.36 59280 59280

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.7	Ia=	0.53	988.00
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.4 Minutes			
CN =	79					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-010

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 80
Open Space	C Soils	74	0.11	4816	
Lots - 27.5% Ir	C Soils	80.6	0.93	40507	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		1.04	45323	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
1.04 45323 45323

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	60	S=	2.5	Ia=	0.50	755.38
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	9	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	2.4 Minutes			
CN =	80					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-BMP4A

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 77
Open Space	C Soils	74	1.20	52464	
Lots - 27.5% Ir	C Soils	80.6	0.83	36011	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		2.03	88475	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
2.03 88475 88475

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	80	S=	3.0	Ia=	0.61	1105.94
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	8	Tc =	0.0 Hours			
Slope % = Y	2.75	Tc =	2.8 Minutes			
CN =	77					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-BMP4B

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 76
Open Space	C Soils	74	2.28	99277	
Lots - 27.5% Ir	C Soils	80.6	1.01	44142	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		3.29	143419	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:
Area Ac Area SF
3.29 143419 143419

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	80	S=	3.2	Ia=	0.63	1792.74
Elev Up	10.2	Lag =	0.0 Hours			
Elev Dn (Inv)	8	Tc =	0.0 Hours			
Slope % = Y	2.75	Tc =	2.9 Minutes			
CN =	76					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-E045A

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 74
Open Space	C Soils	74	0.23	9894	
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.23	9894	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:

Area Ac	Area SF	
0.23	9894	9894

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	20	S=	3.5	Ia=	0.70	494.70
Elev Up	9	Lag =	0.0 Hours			
Elev Dn (Inv)	8.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	1.2 Minutes			
CN =	74					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-012

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 74
Open Space	C Soils	74	0.21	9252	
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.21	9252	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:

Area Ac	Area SF	
0.21	9252	9252

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	20	S=	3.5	Ia=	0.70	462.60
Elev Up	9	Lag =	0.0 Hours			
Elev Dn (Inv)	8.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	1.2 Minutes			
CN =	74					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-011

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 74
Open Space	C Soils	74	0.11	4666	
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.11	4666	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:

Area Ac	Area SF	
0.11	4666	4666

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	20	S=	3.5	Ia=	0.70	233.30
Elev Up	9	Lag =	0.0 Hours			
Elev Dn (Inv)	8.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	1.2 Minutes			
CN =	74					

Proposed Drainage Area Parameters - SCS Method
Windswept Pines Ph3

DA WP3-E065A

		CN	Area Ac.	Area SF	
Impervious - Disconnecte		98	0.00	0	Weighted CN = 74
Open Space	C Soils	74	0.09	4056	
Lots - 27.5% Ir	C Soils	80.6	0.00	0	Connected Impervious:
Wooded	C Soils	70	0.00	0	Area Ac. Area SF % of DA
	CN SubTotal		0.09	4056	0.00 0 0.00

Formula: Potential Max Retention S = (1000 / CN) - 10

Formula: Lag = [(l^0.8) * (S+1)^0.7] / 1900* (Y^0.5)

Total Drainage Area:

Area Ac	Area SF	
0.09	4056	4056

Formula: Time of Concentration = 5 / 3 * Lag

						Width:
Length = l	20	S=	3.5	Ia=	0.70	202.80
Elev Up	9	Lag =	0.0 Hours			
Elev Dn (Inv)	8.6	Tc =	0.0 Hours			
Slope % = Y	2.00	Tc =	1.2 Minutes			
CN =	74					

APPENDIX E
EPA SWMM Model Report

EPA SWMM Model Report

Windswept Pines Phase 3 – Residential Subdivision
Moyock, Currituck County
May 24, 2024

NORTH CAROLINA PROFESSIONAL SEAL 025158 ENGINEER DAVID A. DEEL

General

The following report will detail the EPA SWMM Model which was constructed & analyzed in order to provide design guidance for the stormwater management systems to be installed with the construction of the proposed Windswept Pines, Phase 3 residential subdivision in Moyock, NC.

The Project Site

The Windswept Pines Phase 3 project is a 14 lot addition to the existing Windswept Pines Residential Subdivision in Moyock, North Carolina. The project will be limited to a maximum of 24% Built-Upon-Area (BUA) and, accordingly, an NCDEQ Low Density Stormwater Permit has been acquired for this Project.

The "Windswept Pines" subdivision is located along the north side of Baxter Lane (SR1229), approx. 720' east of its intersection with Caratoke Hwy (NC 168), (36° 32'26.4723"N, -76°11'05.8659"W), in Moyock Township, Currituck County, North Carolina. The entire property totals 66.87 acres, however, a small 1.5 acre portion located between HWY 168 and the railroad, and a residual 2.5 acre lot adjacent to the entrance are not a part of the remaining 62.89 acre development plan for the subdivision. Phases 1 & 2 of the subdivision include 58 lots with infrastructure improvements that have been constructed in accordance with NCDEQ Permit requirements as well as Currituck County Peak Flow Mitigation Requirements. Two Stormwater Management Ponds were constructed between existing Phase 2 and the proposed Phase 3 developments and were intended to provide peak flow mitigation for both phases. This narrative and its supporting documents focus on Phase 3 of the development and demonstrate compliance of the proposed Phase 3 development.

The Phase 3 project site consists of 14.08 acres of land located at the east end of Alden Run in the Windswept Pines Subdivision in Moyock, North Carolina. The Project Area currently consists of fallow open space and is bordered by ditches along the north, and south property lines. The western boundary of Phase 3 is shared with Phase 2 and consists of two large existing interconnected stormwater management ponds with two outlet control structures, draining to the north and the south perimeter ditches. These ditches are part of an interconnected drainage system that drains to both Baxter Lane to the South, an unnamed farm ditch to the east, and a substantial unnamed farm ditch to the north. All three of these ditches drain to the Northwest River.

EPA SWMM Modeling of the existing conditions indicates that the flow is split between these outfalls, with approximately 60% of the peak flow (in the 10-yr rainfall event) draining to the north and east farm ditches.

Soils across the site consist primarily of fine sandy loam.

Plans which accompany this submittal are schematic in nature and are intended to provide guidance in how the SWMM Model was constructed. A separate submission of detailed Construction Plans will be submitted for Currituck County Construction Plans review.

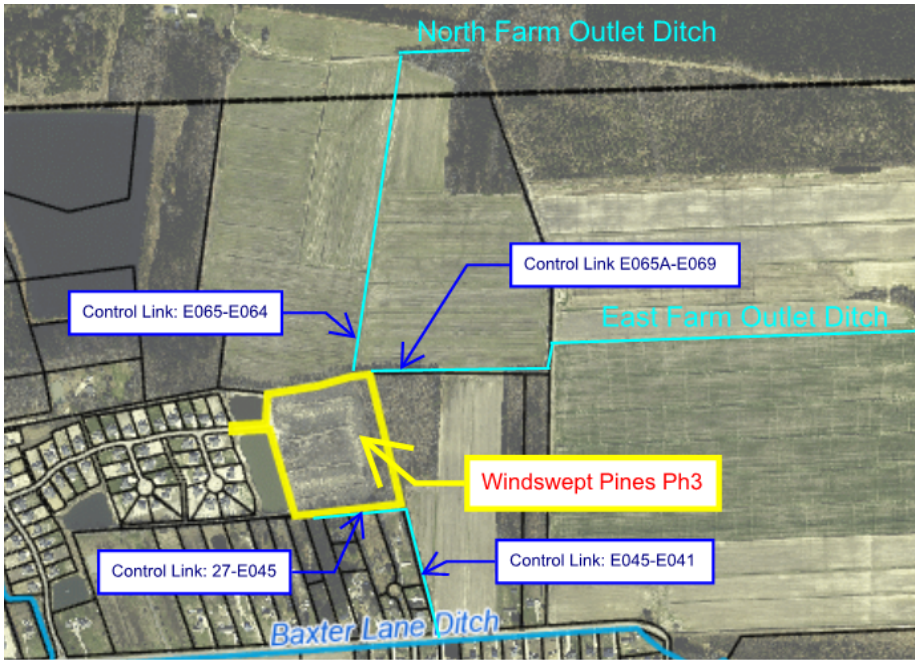
To meet Currituck County's peak flow mitigation requirements, a stormwater management system consisting of two interconnected wet ponds with two outlet control structures draining to the multiple existing outfalls was designed and installed with Phase 2. These ponds will be enlarged as part of the Phase 3 improvements.

Target Design Standards

Post-construction runoff resulting from a 10-yr, 24 hr storm event will be retained and released at a peak flow rate which does not exceed the 2-yr, 24 hr peak runoff rate for the site in a theoretical wooded pre-development condition. Post-construction runoff resulting from a 100-yr, 24 hr storm event will be retained and released at a peak flow rate which does not exceed the actual calculated pre-construction 100-yr, 24 hr peak runoff rate for the site.

Pre-development peak flow was calculated utilizing the NRCS (SCS) Method as incorporated into EPA SWMM software. Four existing ditches were identified and analyzed as control links. Pre-development (target) peak flows calculated for the links of interest are as follows:

E065-E064	Substantial Farm Ditch draining to the north
E065A-E069	Farm Ditch draining to the east
E045-E041	Ditch draining to Baxter Lane to the south
E002-E001	Perimeter Ditch along southern property line (drains to E045-E041)

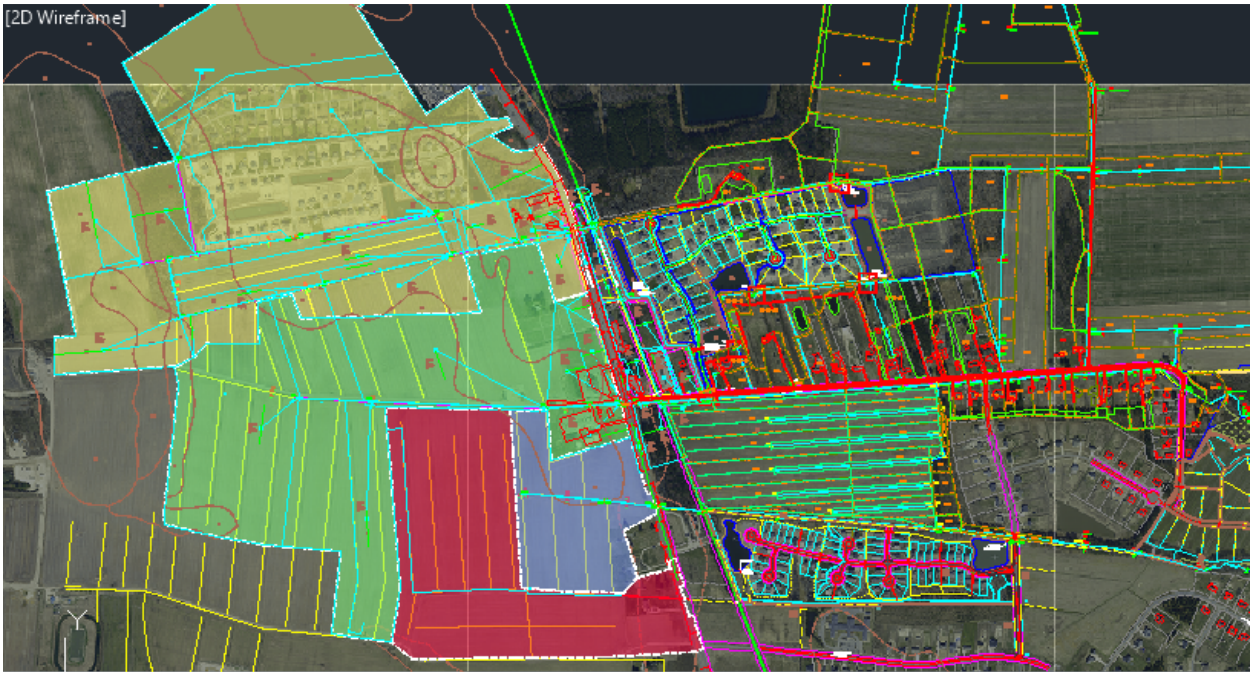


2yr-10yr Analysis (Currituck County Req'mt):

	2yr-10yr Pre (cfs)
E065-E064	14.91
E065A-E069	16.59
E045-E041	14.09
27-E047	11.06

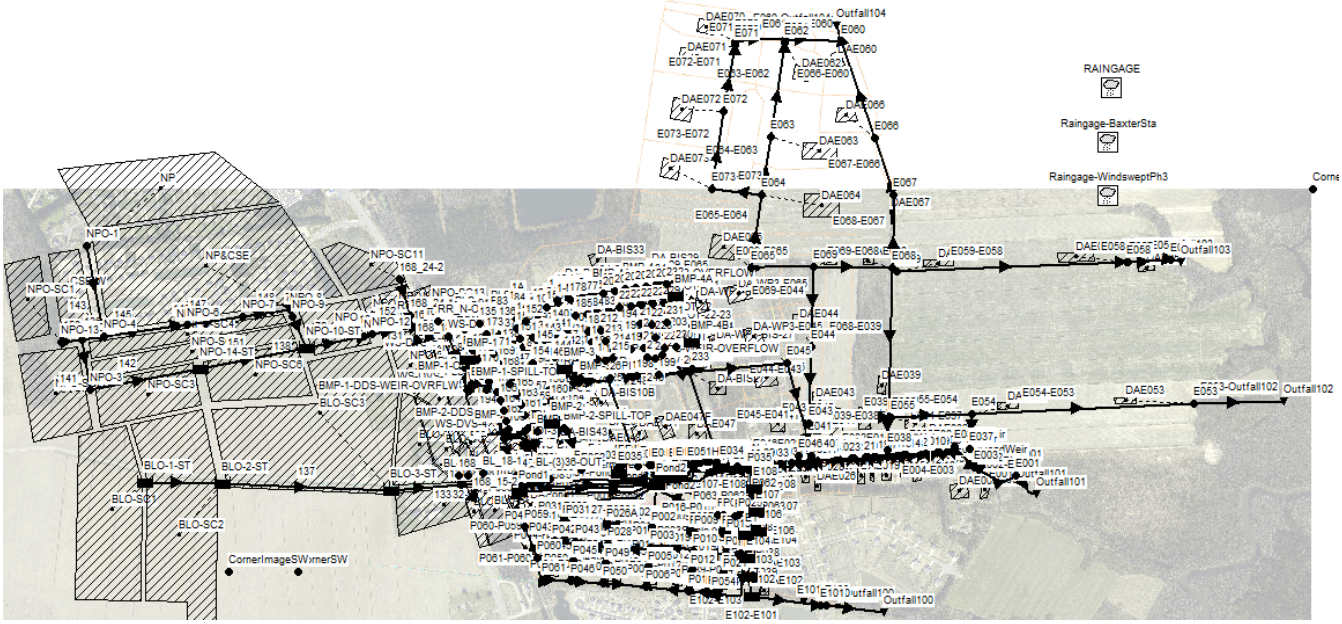
EPA SWMM Model (Ex. Conditions Aerial Schematic):

Electronic (readable) Copy enclosed with this submission



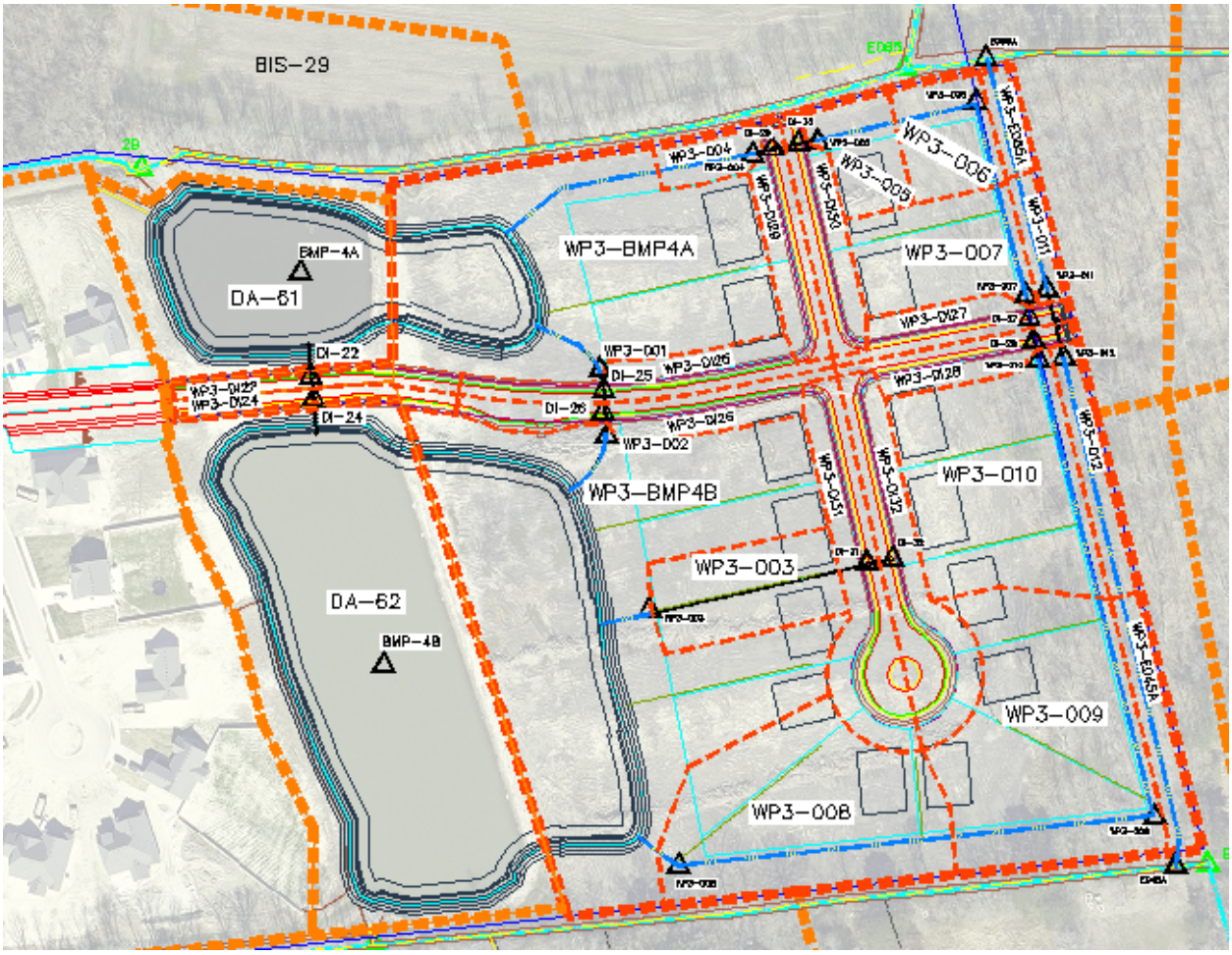
EPA SWMM Model (Ex. Conditions Graphical Model):

Electronic Copy enclosed with this submission



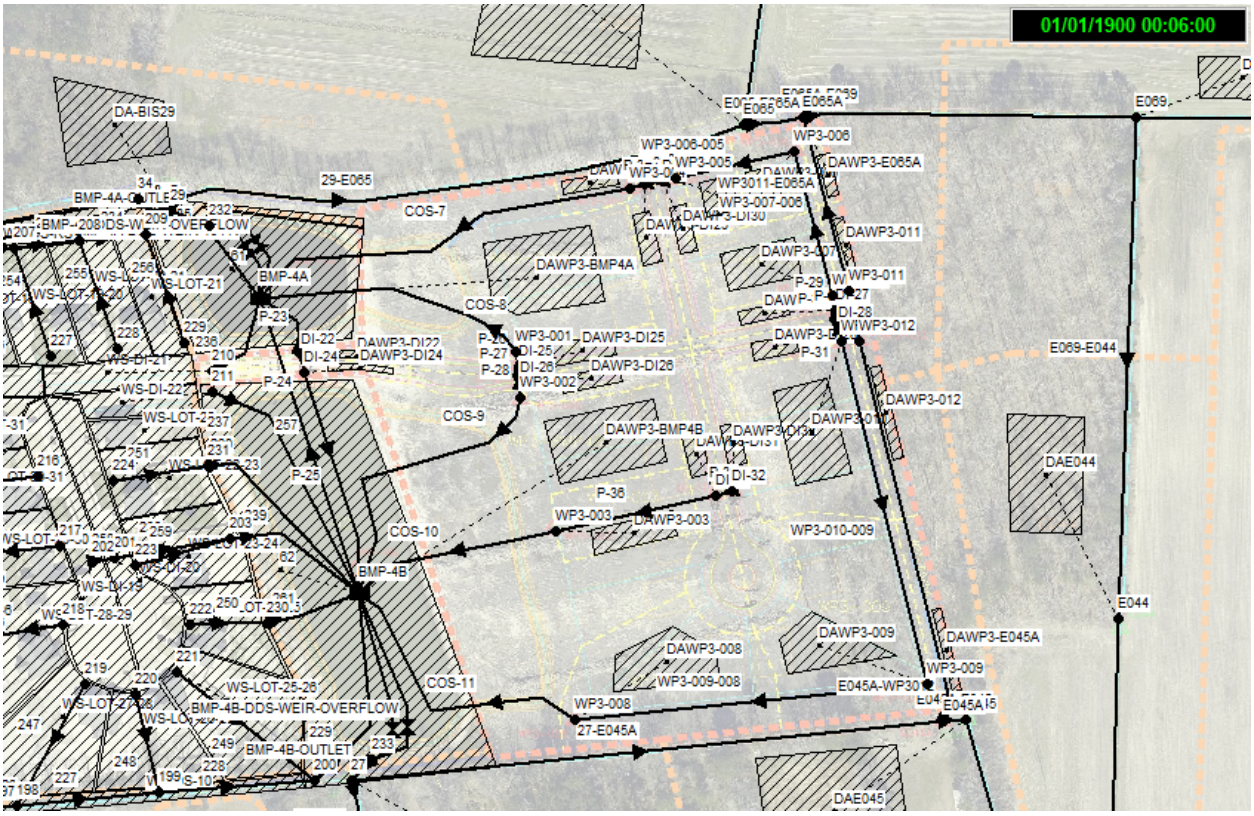
EPA SWMM Model (Prop. Conditions Aerial Schematic):

Full-Size (readable) Copy enclosed with this submission



EPA SWMM Model (Prop. Conditions Graphical Model):

Electronic Copy enclosed with this submission



Model Hydrology

Runoff was modeled utilizing the NRCS (SCS) Method for the 2-yr, 10-yr, and 100-yr, 24-hour storm events. NRCS standard Type III (coastal) rainfall distributions were utilized with total rainfall depths of:

2yr, 24hr Total Rainfall Depth = 3.74 in. (Currituck County Standard)
10yr, 24 hr Total Rainfall Depth = 5.74 in. (NOAA Atlas 14)
100yr, 24 hr Total Rainfall Depth = 9.54 in. (NOAA Atlas 14)

Runoff was routed through the model utilizing a Dynamic Wave method.

Model Elements

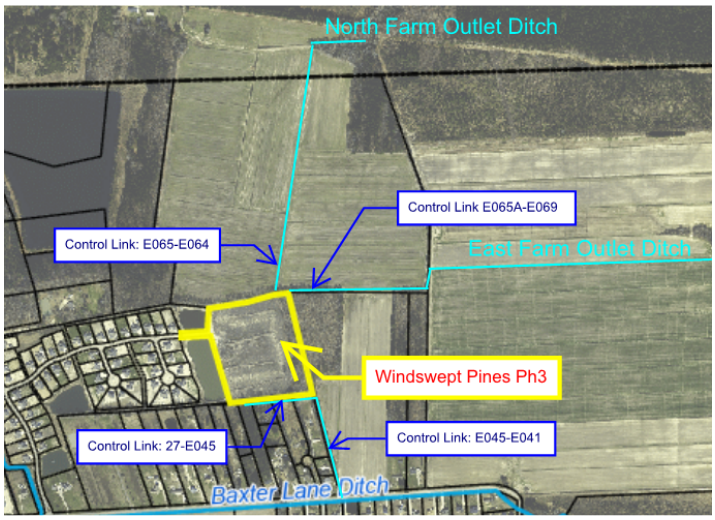
Model Elements input data is included in the electronic files accompanying this narrative.

Methodology

In an examination of the drainage shed, four Links of Interest (LOI) within the drainage system were identified:

E065-E064	Substantial Farm Ditch draining to the north
E065A-E069	Farm Ditch draining to the east
E045-E041	Ditch draining to Baxter Lane to the south
E002-E001	Perimeter Ditch along southern property line (drains to E045-E041)

The Project Area currently consists of fallow open space and is bordered by ditches along the north and south property lines. The western boundary of Phase 3 is shared with Phase 2 and consists of two large existing interconnected stormwater management ponds with two outlet control structures, draining to the north and the south perimeter ditches. These ditches are part of an interconnected drainage system that drains to both Baxter Lane to the South, an unnamed farm ditch to the east, and a substantial unnamed farm ditch to the north. All three of these ditches drain to the Northwest River.



All contributing drainage areas flowing to the three outlets were analyzed and the propose Project Area was segregated from off-site areas so that on-site conditions can be changed for the pre- / post- construction analysis. LOI were identified at locations within the existing drainage system immediately downstream of the Project Area. These LOI were utilized as the "comparison locations" to analyze the effectiveness of the system design in mitigating post-construction flows to pre-construction levels.

Off-site drainage areas were included in the analysis so that tailwater effects at the outfalls can be properly accounted for in the model. This model incorporates a previously approved EPA SWMM Model created by David Klebitz, P.E. of Bissell Professional Group (BPG) for the study of drainage improvements within the Windswept Pines Subdivision as part of its off-site analysis as well as the previously approved Baxter Station EPA SWMM Model by Deel Engineering, PLLC. The previously approved models were utilized for off-site areas and incorporated into this model with cursory verification and all certifications within this report do not certify as to the accuracy of the BPG model. Any inconsistencies within the off-site BPG model will be reflected in both the pre-construction and post-construction Windswept Pines Phase 3 models and would therefore accounted for by their inclusion in both and anticipated to have little to no effect on the design of the Windswept Pines system.

The Post-Construction design for the development consists of a network of two interconnected ponds with a Normal Water Surface Elevation of 6.5', which is regulated at that level via two weir / orifice structures outleting to the perimeter ditches along the north and south property lines.

Existing and Proposed Conditions models were run to generate Peak Flow results for the 2-yr, 10-yr, and 100-yr, 24 hr rainfall events.

The existing Phase 2 weir configurations were tested for balance between pre-construction and post-construction model Peak Flows. The existing weir configurations were found to work with the enlarged ponds:

Pond	**Outfall**	**Weir Configuration**
Pond BMP-4A	Northern Perimeter Ditch	1.25' weir @ Elev. 6.5'
Pond BMP-4A	Northern Perimeter Ditch	20' weir @ Elev. 8.0'
Pond BMP-4B	Southern Perimeter Ditch	1.5' Weir @ Elev. 6.5'
Pond BMP-4B	Sourthern Perimeter Ditch	20' weir @ Elev. 8.0'

Results:

A complete tabulation of the results for Model Elements can be found in the electronic files accompanying this submittal. Summary results pertaining to the design and Currituck County Compliance are as follows:

Peak Flow Mitigation Results:

2-yr / 10-yr Rainfall Peak Flow Mitigation:

	2yr-10yr Pre (cfs)	10yr Post (cfs)
E065-E064	14.91	13.07
E065A-E069	16.59	17.05*
E045-E041	14.09	12.48
27-E047	11.06	10.65

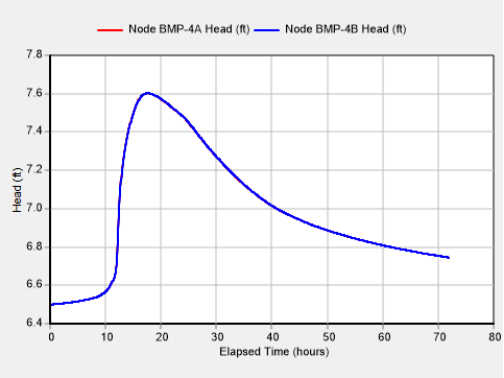
100-yr Rainfall Peak Flow Mitigation:

	100yr Pre (cfs)	100yr Post (cfs)
E065-E064	35.77	27.62
E065A-E069	63.03	55.55
E045-E041	22.61	19.57
27-E047	30.76	23.12

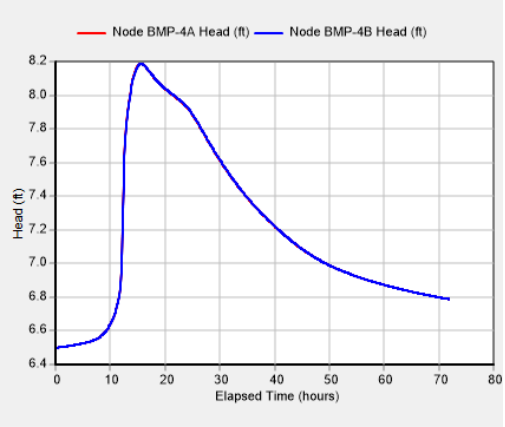
*Peak flow within existing ditch E065-E069 is marginally increased in the post-construction 10-yr condition as compared to the pre-construction 2-yr wooded condition. This is the result of the addition of a perimeter ditch along the Phase 3 eastern property line. This ditch is being provided as a result of discussions with Currituck County in order to provide an additional flow route for waters from the rear of the northern lots along Baxter Lane. The project still complies with the 10-yr/2-yr peak flow mitigation requirement due to this small increase (0.46 cfs) being offset by substantial decreases (3.86 cfs) in the other ditches draining from the subject property. Put another way, the sum total of the peak flows from Phase 3 in the pre-construction, 2-yr, wooded condition is 56.65 cfs and the sum total of the peak flows from Phase 3 in the post-construction 10-yr, developed condition is 53.25 cfs.

Pond Drawdown:

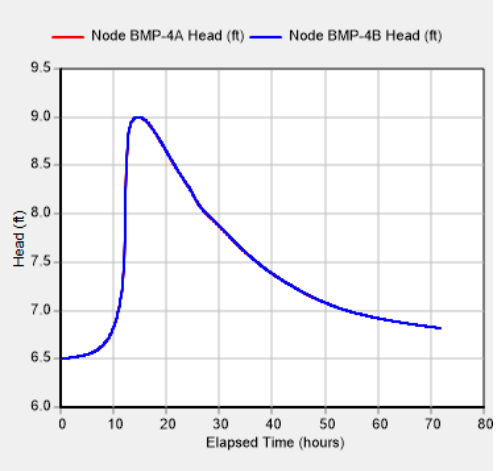
2-yr Drawdown:



10-yr Drawdown:

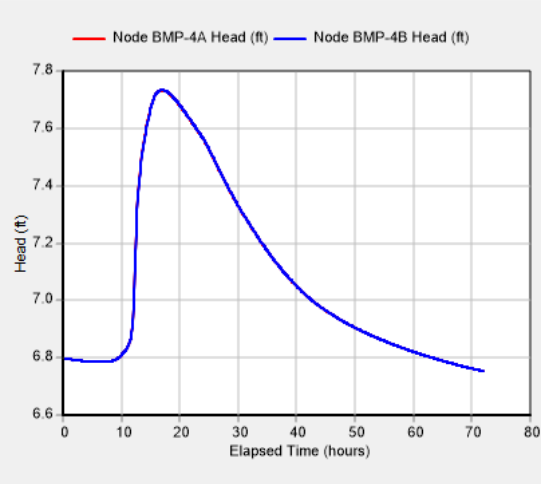


100-yr Drawdown:

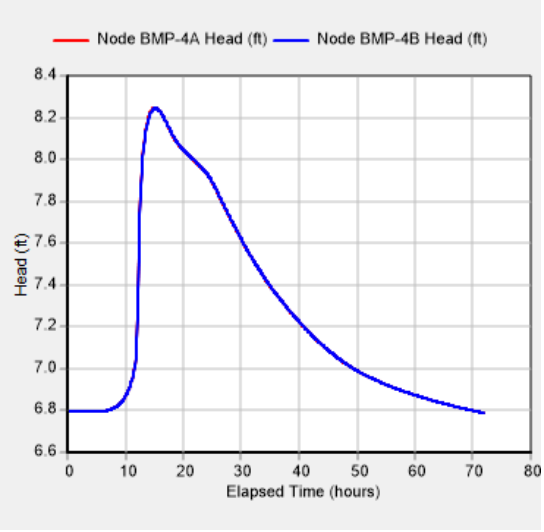


Note that the tailing end of the curve indicates that the HGL within the pond for all three storm events remains about 0.3' higher than the initial pond HGL (6.8' vs 6.5'). This is due to slow flow across the weirs at low heads. To determine if this will cause a problem with the functioning of the pond, we ran scenarios with a starting pond HGL of 6.8' to see if the pond would pull-back down to the new starting HGL of 6.8'. The "raised" HGL of 6.8' draws back down to 6.8' within 65-70 hours, indicating that the system has the capacity to function with multiple back-to-back storms.

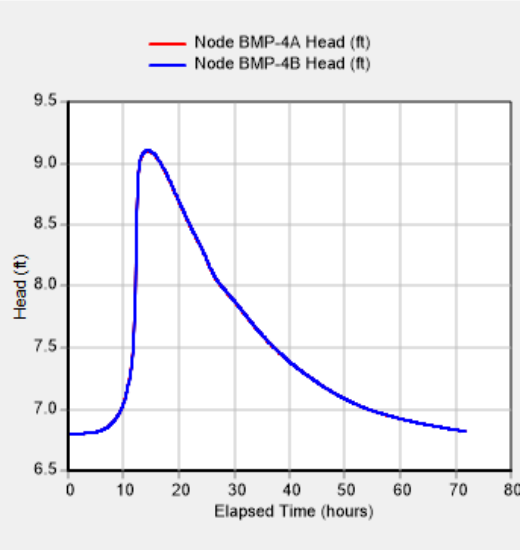
2-yr Drawdown (Starting HGL 6.8'):



10-yr Drawdown (Starting HGL 6.8'):



100-yr Drawdown (Starting HGL 6.8'):



Conclusions:

SWMM Modeling of the entire Windswept Pines Phase 3 drainage shed demonstrates that the proposed design complies with the Currituck County Stormwater Ordinance requirement that Post-Development peak flow from the 10-yr, 24 hr rainfall event be maintained at or below the Pre-Development peak flow from a 2-yr, 24hr rainfall event across a theoretical wooded site. The proposed design also reduces post-development peak flow below the pre-development peak flow for the 100-yr, 24 hr rainfall event:

APPENDIX F
SESCP Flow & Velocities Check

ATTACHMENT C – SEDIMENTATION EROSION CONTROL CALCULATIONS

- Erosive Velocity Check - 2 Year, Bare Soil Condition
- Erosive Velocity Check - 10 Year, Vegetated Condition
- Erosion Control Sediment Basin Calculations
- Erosion Control Skimmer Calculations

Windswept Pines
Phase 3

EROSIVE VELOCITY CALCULATIONS

3/25/2024

Link Flow and Velocity - 2 yr			
Link Name	Shape	Flow (cfs)	Vel (fps)
P-23	CONDUIT	1.13	1.08
P-24	CONDUIT	0.5	0.41
P-25	CONDUIT	1.13	1.08
P-26	CONDUIT	0.86	1.96
P-27	CONDUIT	0.24	0.3
P-28	CONDUIT	0.87	2.03
P-29	CONDUIT	1.31	1.29
P-30	CONDUIT	0.83	0.84
P-31	CONDUIT	0.46	0.74
P-32	CONDUIT	2.16	1.75
P-33	CONDUIT	2.46	2.1
P-34	CONDUIT	2.77	2.61
P-35	CONDUIT	1.32	1.15
P-36	CONDUIT	2.62	2.8
P-37	CONDUIT	0.53	1.17
COS-7	CONDUIT	2.92	0.98
COS-8	CONDUIT	0.86	0.71
COS-9	CONDUIT	0.84	0.73
COS-10	CONDUIT	3.43	1.84
COS-11	CONDUIT	3.16	1.25
WP3-006-005	CONDUIT	1.89	0.53
WP3-007-006	CONDUIT	1.94	0.73
WP3-009-008	CONDUIT	2.09	0.77
WP3-010-009	CONDUIT	1.16	0.59
WP3011-E065A	CONDUIT	0.54	0.06
E045A-WP3012	CONDUIT	0.51	0.29

Velocity Check
Bare Soil > 2 fps
N/A - Culvert Pipe
N/A - Culvert Pipe
N/A - Culvert Pipe
N/A - Culvert Pipe
Curb outlet Swale - OK
Curb outlet Swale - OK
Curb outlet Swale - OK
Curb outlet Swale - OK
Curb outlet Swale - OK

Link Flow and Velocity - 10 yr				Velocity Check
Link Name	Shape	Flow (cfs)	Vel (fps)	Vegetated > 4 fps
P-23	CONDUIT	1.13	1.08	
P-24	CONDUIT	0.82	0.56	
P-25	CONDUIT	1.23	1.08	
P-26	CONDUIT	1.38	2.11	
P-27	CONDUIT	0.57	0.42	
P-28	CONDUIT	1.42	2.17	
P-29	CONDUIT	1.83	1.4	
P-30	CONDUIT	0.95	0.74	
P-31	CONDUIT	0.33	0.46	
P-32	CONDUIT	3.86	2.21	
P-33	CONDUIT	4.43	2.66	
P-34	CONDUIT	5.16	3.49	
P-35	CONDUIT	2.22	1.33	
P-36	CONDUIT	4.42	3.39	
P-37	CONDUIT	2	2.02	
COS-7	CONDUIT	5.48	1.1	Curb outlet Swale - OK
COS-8	CONDUIT	1.27	0.57	Curb outlet Swale - OK
COS-9	CONDUIT	1.32	0.6	Curb outlet Swale - OK
COS-10	CONDUIT	6.14	1.92	Curb outlet Swale - OK
COS-11	CONDUIT	8.65	1.72	Curb outlet Swale - OK
WP3-006-005	CONDUIT	3.18	0.53	
WP3-007-006	CONDUIT	3.04	0.64	
WP3-009-008	CONDUIT	5.87	1.02	
WP3-010-009	CONDUIT	2.95	0.57	
WP3011-E065A	CONDUIT	2.03	0.16	
E045A-WP3012	CONDUIT	1.99	0.41	

WINDSWEPT PINES - PHASE 3
Residential Subdivision

Sediment Basin
Calculations

Sediment Basin A - BMP-4A

Requirements

Tributary Drainage Area	5.30	*acres*		
Min. Required Storage Volume	9,540	*ft³*	*(1,800 ft³ /acre)*	
*Estimated 10 year peak inflow**	31.80	*cfs*	*Inflow to BMP 4A*	
Min. Required Surface Area	10,335	*ft²*	*(325 ft² /cfs)*	

Design - Temporary Use of Stormwater BMP

Avg. Flow Path Width	50	*ft. +/-*		
Avg. Flow Path Length	210	*ft. +/-*		
Length to Width Ratio	**4.2**	***OK***		
Surface Area Provided	**60,000**	*ft², @ Elev. 6.5'*		***5.8 Times Required***
Is Surface Area Provided > Required	YES			
Storage Volume Provided	**94,805**	*ft³*, @ Elev. 8.0'		9.9 ***Times Required***
Is Storage Volume Provided > Required	YES			

Sediment Basin B - BMP-4B

Requirements

Tributary Drainage Area	11.77	*acres*		
Min. Required Storage Volume	21,186	*ft³*	*(1,800 ft³ /acre)*	
*Estimated 10 year peak inflow**	77.50	*cfs*	*Inflow to BMP 4B*	
Min. Required Surface Area	25,188	*ft²*	*(325 ft² /cfs)*	

Design - Temporary Use of Stormwater BMP

Avg. Flow Path Width	50	*ft. +/-*		
Avg. Flow Path Length	280	*ft. +/-*		
Length to Width Ratio	**5.6**	***OK***		
Surface Area Provided	**170,306**	*ft², @ Elev. 6.5'*		***6.8 Times Required***
Is Surface Area Provided > Required	YES			
Storage Volume Provided	**262,920**	*ft³*, @ Elev. 8.0'		**12.4** ***Times Required***
Is Storage Volume Provided > Required	YES			

* 10 year peak flows per SWMM Model by DEEL Engineering, PLLC

WINDSWEPT PINES - PHASE 3
Residential Subdivision

Erosion Control Skimmer
Calculations

Sediment Basin A - Skimmer

Drawdown Period [t_d]	2	*days (2-5)*		
Drawdown Volume (Temp. pool) [V]	9,540	*ft^3*		
Drawdown Discharge Rate [Q_d]	4,770	*ft^3/day*	*0.06*	*cfs*
Choose Skimmer Body Diameter	3.0	*in.*	*1.12*	*fps*
Head on Orifice from Table [H]	0.250	*ft.*		
Resulting Orifice Diameter [D]	**2.0**	*in.*		
Is Orifice Diameter < Skimmer Body Diameter	**YES**			

Sediment Basin B - Skimmer

Drawdown Period [t_d]	2	*days (2-5)*		
Drawdown Volume (Temp. pool) [V]	21,186	*ft^3*		
Drawdown Discharge Rate [Q_d]	10,593	*ft^3/day*	*0.12*	*cfs*
Choose Skimmer Body Diameter	4.0	*in.*	*1.40*	*fps*
Head on Orifice from Table [H]	0.333	*ft.*		
Resulting Orifice Diameter [D]	**2.8**	*in.*		
Is Orifice Diameter < Skimmer Body Diameter	**YES**			

Head on orifice of various skimmer sizes

Skimmer Size (in.)	Head on Orifice (ft.)
1.5	0.125
2	0.167
2.5	0.208
3	0.250
4	*0.333*
5	*0.333*
6	*0.417*
8	*0.500*

Table 6.64a NC Erosion Control Manual

Equations:

$Q_d = V / t_d$ (ft^3/day)

$D = \sqrt{[Q_d/(2310*\sqrt{H})]}$ (inches)

WINDSWEPT PINES PHASE 3
EXISTING CONDITIONS
EPA SWMM MODEL EXHIBIT
DRAINAGE AREA, NODE & LINK LAYOUT

E065

CONTROL LINK: E065-E064

CONTROL LINK: E065A-E069

E065

E069

E069

BIS–29

LOCATION OF EXISTING OUTLET WEIR

29

61

WP3–BIS–29

WP3–E065

WINDSWEPT PINES PHASE 3

N

62

WP3–BIS–27

E044

E044

WP3–E045

E045

E045

CONTROL LINK: 27-E045

CONTROL LINK: E045-E041

LOCATION OF EXISTING OUTLET WEIR

27

E045

DA–BIS–27

LEGEND

DRAINAGE AREA – BAXTER STA. EX. COND. SWMM MODEL

DRAINAGE AREA – WINDSWEPT PH3. EX. COND. SWMM MODEL

SWMM LINK (EX. DITCH)

E045 SWMM NODE

SCALE: 1'=60'
5/24/2024

DEEL ENGINEERING, PLLC
P.O. BOX 3901
KILL DEVIL HILLS, NC 27948
(252)202-3803

WINDSWEPT PINES PHASE 3

PROPOSED CONDITIONS

EPA SWMM MODEL EXHIBIT

DRAINAGE AREA, NODE & LINK LAYOUT

CONTROL LINK: E065-E064

CONTROL LINK: E065A-E069

BIS–29

E065

E065A

29

WP3–006

WP3–E065A

WP3–004

DI–29

DI–30

WP3–005

WP3–004

WP3–006

WP3–005

WP3–DI29

WP3–DI30

WP3–011

LOCATION OF EXISTING OUTLET WEIR

BMP–4A

WP3–BMP4A

WP3–007

E069

DA–61

WP3–007

WP3–011

WP3–DI27

DI–27

DI–28

WP3–012

WP3–010

DI–22

WP3–001

WP3–DI25

DI–25

WP3–DI28

WP3–DI22

WP3–DI24

DI–24

DI–26

WP3–DI26

WP3–002

WP3–012

WP3–BMP4B

WP3–DI31

WP3–DI32

WP3–010

N

DI–31

DI–32

WP3–003

DA–62

WP3–003

E044

BMP–4B

WP3–E045A

WP3–009

WP3–008

WP3–008

WP3–009

E045

E045A

LEGEND

DRAINAGE AREA

SWMM NODE

SWMM LINK (PROP. SWALE)

SWMM LINK (EX. DITCH)

SCALE: 1'=50'
5/24/2024

LOCATION OF EXISTING OUTLET WEIR

27

CONTROL LINK: 27-E045

CONTROL LINK: E045-E041

DEEL ENGINEERING, PLLC
P.O. BOX 3901
KILL DEVIL HILLS, NC 27948
(252)202-3803

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
WILLIAM E. TOBY VINSON, JR
Interim Director

NORTH CAROLINA
Environmental Quality

04-18-2024

LETTER OF APPROVAL

Allied Properties, LLC
417-D Caratoke Hwy

RE: Project Name: Windswept Pines - Phase 3
Project ID: CURRI-2024-0109
Acres Approved: 19
County: Currituck
City: Moyock
Address: Alden Run
River Basin: Pasquotank
Stream Classification: C: Aquatic Life, Secondary Contact Recreation, Fresh water; SW: Swamp Waters
Submitted By: Matt Sides
Plan Type: New Plan

Dear Allied Properties, LLC,

This office has reviewed the subject erosion and sedimentation control plan. We hereby issue this Letter of Approval. Any modifications required for approval are listed in the body of the email that accompanied this attached letter. The enclosed Certificate of Approval must be posted at the job site. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

As of April 1, 2019, all new construction activities not explicitly exempt are required to complete and submit an electronic Notice of Intent (eNOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction General Permit. After the form is reviewed and found to be complete, you will receive a link with payment instructions for the annual permit fee. After the fee is processed, you will receive the COC. As the Financially Responsible Party shown on the FRO form submitted for this project, you MUST obtain the COC prior to commencement of any land disturbing activity. The eNOI form may be accessed at deq.nc.gov/NCG01.

Please direct questions about the eNOI form to the Stormwater Program staff in the Raleigh central office. If the owner/operator of this project changes in the future, the new responsible party must obtain a new COC.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:

1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 12 months.

Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to ensure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Act is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to ensure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form and on the plan, which you provided. You are requested to file an amended form if there is any change in the information included on the form.

Your cooperation is appreciated.

Sincerely,

Jerry Jones

Land Quality Section

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
WILLIAM E. TOBY VINSON, JR
Interim Director

NORTH CAROLINA
Environmental Quality

May 20, 2024

Windswept Pines Community Association, Inc.
Attn: Justin Old
417 D Caratoke Hwy
Moyock, NC 27958

Subject: **State Stormwater Management Permit No. SW7170605 Modification**
Windswept Pines – Phase 1 - 3
Low Density Subdivision – Curb Outlet Swales
Currituck County

Dear Justin Old:

The Washington Regional Office received a complete Stormwater Management Permit Application for the transfer of ownership of Windswept Pines – Phase 1 - 3 from Allied Properties, LLC to Windswept Pines Community Association, Inc. on March 27, 2024. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H.1000. We are forwarding Permit No. SW7170605 dated May 20, 2024, for the subject project. The modifications include:

1. Adding 14 lots to the subdivision and associated Build Upon Area for a total of 657,476 square feet of impervious surface.
2. Changing the percent impervious to 24.00%

This permit shall be effective from the date of issuance until rescinded and the project shall be subject to the conditions and limitations as specified therein and does not supersede any other agency permit that may be required. Failure to comply with these requirements will result in future compliance problems. Please note that this permit is not transferable except after notice to and approval by the Division.

This cover letter, attachments, and all documents on file with DEMLR shall be considered part of this permit and is herein incorporated by reference.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing by filing a written petition with the Office of Administrative Hearings (OAH). The written petition must conform to Chapter 150B of the North Carolina General Statutes and must be filed with the OAH within thirty (30) days of receipt of this permit. You should contact the OAH with all questions regarding the filing fee (if a filing fee is required) and/or the details of the filing process at 6714 Mail Service Center, Raleigh, NC 27699-6714, or via telephone at 919-431-3000, or visit their website at www.NCOAH.com. Unless such demands are made this permit shall be final and binding. If you have any questions concerning this permit, please contact Carl Dunn in the Washington Regional Office, at (252) 948-3973 or denis.hyska@deq.nc.gov.

Sincerely,
Denis Hyska, CAPM
Division of Energy, Mineral and Land Resources

cc: David Klebitz – Bizzell Professional Group (davek@bissellprofessionalgroup.com)
Richard Godsey - Currituck County Chief Building Inspector (richard.godsey@currituckcountync.gov)
Washington Regional Office Stormwater File

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES

STATE STORMWATER MANAGEMENT PERMIT

LOW DENSITY SUBDIVISION DEVELOPMENT WITH A CURB OUTLET SWALE SYSTEM

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

Windswept Pines Community Association, Inc

Windswept Pines – Phase 1 - 3

Currituck County

FOR THE

construction, operation and maintenance of a 24% low density subdivision project with a curb outlet swale system in compliance with the provisions of Title 15A NCAC 2H .1000 (hereafter referred to as the *"stormwater rules")* and the approved stormwater management plans and specifications, and other supporting data as attached and on file with and approved by the Division of Energy, Mineral and Land Resources (hereafter referred to as the Division or DEMLR) and considered a part of this permit for the Windswept Pines, Phase 1 - 3 Subdivision located at Moyock, NC.

The Permit shall be effective from the date of issuance until rescinded and shall be subject to the following specific conditions and limitations:

I. DESIGN STANDARDS

1. The overall tract built-upon area percentage for the project must be maintained at 24% per the requirements of the stormwater rules. This permit covers the construction of a total of 657,476 square feet of built-upon area (BUA).

2. Each of the 73 lots is limited to a maximum built-upon area as indicated in the application and as shown in the attached allowable built-upon table.

3. This project proposes a curb outlet system. Each of the designated curb outlet swales as shown on the approved plan must be maintained at a minimum of 100' long, maintain 3:1 (H:V) side slopes or flatter, have a longitudinal slope no steeper than 5%, carry the flow from a 10- year storm in a non-erosive manner, and maintain a dense vegetated cover. With the issuance of this permit, the Division is granting a minor variance from the "100' minimum curb outlet swale length" requirements for one curb outlet swale draining into pond 4B. The proposed BMP's for this project will provide equal, or better stormwater controls for the stormwater runoff, than the loss of 50' of curb outlet swale length.

4. Runoff conveyances other than the curb outlet system swales, such as perimeter ditches, must be vegetated with side slopes no steeper than 3:1 (H:V).

5. Five wet detention ponds are provided to meet the Currituck County Unified Development Ordinance and are not covered by this permit.

6. No piping shall be allowed except those minimum amounts necessary to direct runoff beneath an impervious surface such as a road or under driveways to provide access. With the issuance of this permit, the Division is granting a minor variance from the "no piping" requirements as set in 15A NCAC 2H.1003(6)(b), at the following locations: inlets and the outlets at the proposed BMP's and piping between lots 2 & 3, and 55 & 56 and 63 & 64. The proposed BMP's for this project will provide equal, or better stormwater controls for the stormwater runoff, than the vegetated swales lost by extended piping.

7. The project shall provide and maintain a minimum 50-foot wide vegetative buffer adjacent all surface waters, measured horizontally from and perpendicular to the normal pool of impounded structures, the top of bank of each side of streams and rivers and the mean high water line of tidal waters. All runoff directed into and through the vegetative buffer must flow through the buffer in a diffuse manner.

8. Stormwater runoff that is directed to flow through any wetlands shall flow into and through these wetlands at a non-erosive velocity.

II. SCHEDULE OF COMPLIANCE

1. No person shall alter the approved stormwater management system or fill in, alter, or pipe any drainage feature (such as swales) shown on the approved plans as part of the stormwater management system, except for minimum driveway crossings, unless and until the permittee submits a modification to the permit and receives approval from the Division.

2. The maximum built-upon area assigned to each lot via this permit and the recorded deed restrictions may not be increased or decreased by either the individual lot owner or the permittee unless and until the permittee notifies the Division and obtains written approval from the Division.

3. The permittee shall review each lot for new construction and all subsequent modifications and additions, for compliance with the requirements of the permit. The plans reviewed must include all proposed built-upon area, grading, and driveway pipe placement. The permittee may establish an Architectural Review Board (ARB) or Committee (ARC) to review new and modified lot development plans for compliance with the Covenants and Restrictions, including the BUA limit. However, any approval given by the ARB or ARC on behalf of the permittee does not relieve the permittee of the responsibility to maintain compliance with the overall permitted built-upon area for the project.

4. The permittee is responsible for verifying that the proposed built-upon area on each individual lot, and for the entire project, does not exceed the maximum allowed by this permit. The permittee shall routinely monitor the lots and where a lot is determined to have exceeded the permitted maximum BUA, the permittee shall notify the lot owner of such in writing and shall require remediation within a reasonable time frame to bring the lot into compliance.

5. Curb outlet swales, swales, vegetated areas and other vegetated conveyances shall be constructed in their entirety, vegetated, and operational for their intended use prior to the construction of any built-upon surface, per the approved plans.

6. During construction, erosion shall be kept to a minimum and any eroded areas of the swales or other vegetated conveyances will be repaired immediately.

7. The permittee shall at all times provide and perform the operation and maintenance necessary as listed in the signed Operation and Maintenance Agreement, such that the

permitted curb outlet swales and stormwater management system functions at its optimum efficiency.

8. Deed restrictions are incorporated into this permit by reference and must be recorded with the Office of the Register of Deeds prior to the sale of any lot. Recorded deed restrictions must include, at a minimum, the following statements related to stormwater management:

   a. The following covenants are intended to ensure ongoing compliance with State Stormwater Management Permit Number SW7170605, as issued by the Division of Energy, Mineral and Land Resources under NCAC 2H.1000.
   b. The State of North Carolina is made a beneficiary of these covenants to the extent necessary to maintain compliance with the Stormwater Management Permit.
   c. These covenants are to run with the land and be binding on all persons and parties claiming under them.
   d. The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the Division.
   e. Alteration of the drainage as shown on the approved plans may not take place without the concurrence of the Division.
   f. The maximum built-upon area per lot is listed in the attached Table for the Windswept Pines Subdivision, Phase 1 - 3. 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, gravel, brick, stone, slate, coquina, driveways, and parking areas, but does not include raised, open wood decking, or the water surface of swimming pools.
   g. Filling in, piping or altering any 3:1 vegetated conveyances (ditches, swales, etc.) associated with the development except for average driveway crossings, is prohibited by any persons.
   h. Filling in, piping or altering any designated 5:1 curb outlet swale or vegetated area associated with the development is prohibited by any persons.
   i. A 50-foot wide buffer must be provided adjacent to surface waters, measured horizontally from and perpendicular to the normal pool of impounded structures, the top of bank of both sides of streams and rivers, and the mean high waterline of tidal waters.
   j. All roof drains shall terminate at least 50' from the normal pool of impounded structures, the banks of rivers and streams and the Mean High Waterline of tidal waters.
   k. Each designated curb outlet swale or 100' vegetated area shown on the approved plan must be maintained at a minimum of 100' long, maintain 3:1 (H:V) side slopes or flatter, have a longitudinal slope no steeper than 5%, carry the flow from a 10 year storm in a non-erosive manner, maintain a dense vegetated cover, and be located in either a dedicated common area or a recorded drainage easement.
   l. Any individual or entity found to be in noncompliance with the provisions of a stormwater management permit or the requirements of the stormwater rules is subject to enforcement procedures as set forth in N.C.G.S. 143, Article 21.

9. The permittee must submit a copy of the recorded deed restrictions within 30 days of the date of recording.

10. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:

    a. Any revision to the approved plans, regardless of size.
    b. Redesign or addition to the approved amount of built-upon area or to the drainage area.
    c. Further subdivision, acquisition or sale of the project area in whole or in part. The project area is defined as all property owned by the permittee, for which Sedimentation and Erosion Control Plan approval or a CAMA Major permit was sought.
    d. Filling in, piping, or altering any vegetative conveyance shown on the approved plan, except the minimum driveway crossings.
    e. The development of any future area or additional phase(s) noted on the approved plans.

11. All stormwater conveyances will be located in either public rights-of-way, dedicated common areas or drainage easements. The final plats for the project will be recorded showing all such required rights-of-way, common areas and easements, in accordance with the approved plans.

12. The permittee must certify in writing that the project's stormwater controls, and impervious surfaces have been constructed within substantial intent of the approved plans and specifications. Any deviation from the approved plans must be noted on the Certification. The permittee shall submit the Certification to the Division within 30 days of completion of the project.

13. The permittee shall submit all information requested by the Director or his representative within the time frame specified in the written information request.

14. The Director 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 Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.

III. GENERAL CONDITIONS

1. This permit is not transferable to any person or entity except after notice to and approval by the Director. A request to transfer the permit will be considered on its merits and may or may not be approved. The permittee shall complete, sign and submit one of the two Name/Ownership Change Forms available online. The Name/Ownership Change Form must be accompanied by the supporting documentation as listed on the form and must be submitted to the appropriate Regional Office of the Division at least 60 days prior to any one or more of the following events:

    a. The sale or conveyance of the project area in whole or in part, except for individual lot sales which are made subject to the recorded covenants and restrictions of record;
    b. The sale or conveyance of the common areas to the HOA or POA where the requirements of Session Law 2011-256 have been met;
    c. The dissolution of the corporate entity, LLC, or General Partnership;
    d. Bankruptcy and/or foreclosure proceedings;
    e. A name change of the permittee;
    f. A name change of the project;
    g. A mailing address change of the permittee.

2. The Permittee is responsible for compliance with all the terms and conditions of this permit until such time as the Division approves the permit transfer in writing. Neither the sale of the project area, in whole or in part, nor the conveyance of common area to a third party constitutes an approved transfer of the stormwater permit.

3. The permit issued shall continue in force and effect until revoked or terminated.

4. 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.

5. The issuance of this permit does not prohibit the Director from reopening and modifying the permit, revoking and reissuing the permit, or terminating the permit for cause as allowed by the laws, rules, and regulations contained in Title 15A of the North Carolina Administrative Code, Subchapter 2H.1000; and North Carolina General Statute 143-215.1 et. al.

6. The issuance of this permit does not preclude the Permittee from complying with and obtaining any and all other permits or approvals that are required in order for this development to take place, as required by any statutes, rules, regulations, or ordinances, which may be imposed by any other Local, State or Federal government agency having jurisdiction. Any activities undertaken at this site that cause a water quality violation or undertaken prior to receipt of the necessary permits or approvals to do so are considered violations of NCGS 143-215.1, and subject to enforcement procedures pursuant to NCGS 143-215.6.

7. Any person or entity found to be in noncompliance with the provisions of a stormwater management permit or the requirements of the stormwater rules is subject to enforcement procedures as set forth in N.C.G.S. 143, Article 21.

8. Approved plans, application, supplements, operation & maintenance agreements and specifications for projects covered by this permit are incorporated by reference and are enforceable parts of the permit. A copy of this permit, application, supplements, the operation and maintenance agreements, and the approved plans and specifications shall be maintained on file by the Permittee at all times.

9. The Permittee grants permission to DEMLR Staff to enter the property during normal business hours for the purposes of inspecting the stormwater control system and its components.

10. Unless specified elsewhere, permanent seeding requirements for the swales must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual.

Permit issued this the 20th day of May 2024.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

For Toby Vinson, Interim Director
Division of Energy, Mineral and Land Resources
By Authority of the Environmental Management Commission

Permit Number SW7170605

Attachment A

Breakdown of the allowed BUA for each lot for the low-density permit SW7170605

WINDSWEPT PINES - PHASE 1 - 3
Residential Subdivision

Allowable Built-Upon Area and Deed Restriction Calculations

Low Density

LOT NO.	LOT AREA (SF)	MAXIMUM BUILT-UPON AREA (SF)	
1	20,016	5,504	PHASE 1 LOTS
2	20,028	5,508	
3	20,023	5,506	
4	20,014	5,504	
5	20,070	5,519	
6	20,036	5,510	
7	20,000	5,500	
8	20,001	5,500	
9	20,106	5,529	
10	20,003	5,501	
11	20,001	5,500	
12	20,005	5,501	
13	20,048	5,513	PHASE 2 LOTS
14	20,002	5,501	
15	20,008	5,502	
16	20,004	5,501	
17	20,004	5,501	
18	20,001	5,500	
19	20,000	5,500	
20	21,095	5,801	
21	21,552	5,927	
22	20,367	5,601	
23	20,404	5,611	
24	20,455	5,625	
25	25,310	6,960	
26	24,226	6,662	
27	23,697	6,517	
28	23,058	6,341	
29	20,017	5,505	
30	20,014	5,504	
31	20,013	5,504	
32	20,020	5,506	
33	20,014	5,504	
34	20,023	5,506	
35	25,108	6,905	
36	25,036	6,885	
37	24,509	6,740	
38	23,074	6,345	
39	20,073	5,520	
40	20,016	5,504	
41	20,197	5,554	
42	20,030	5,508	PHASE 1 LOTS
43	20,015	5,504	
44	20,000	5,500	
45	20,000	5,500	
46	20,683	5,688	
47	20,023	5,506	
48	20,000	5,500	
49	20,118	5,532	
50	20,000	5,500	
51	20,035	5,510	
52	21,774	5,988	
53	20,476	5,631	
54	20,125	5,534	
55	20,022	5,506	
56	20,016	5,504	

57	20,251	5,569	
58	20,167	5,546	
60	23,980	6,595	PHASE 3 LOTS
61	22,068	6,069	
62	23,252	6,394	
63	22,706	6,244	
64	21,130	5,811	
65	21,153	5,817	
66	21,153	5,817	
67	21,153	5,817	
68	21,227	5,837	
69	20,000	5,500	
70	20,000	5,500	
71	20,000	5,500	
72	20,587	5,661	
73	20,587	5,661	
Total	**1,501,379**	**412,879**	

Lot 59 is a residual parcel that is not a part and intentionally excluded

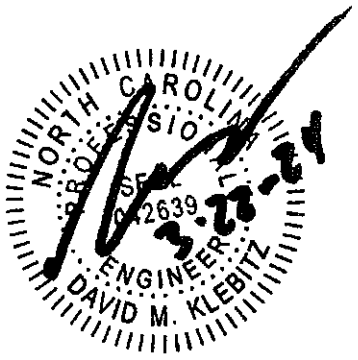
WINDSWEPT PINES - PHASE 1 - 3
Residential Subdivision

Allowable Built-Upon Area and Deed Restriction Calculations

Low Density

Project Area Data:		
	Area (sf)	
Total Property Area:	2,912,940	66.87 Ac.
Commercial Lot Not A Part:	64,548	1.48 Ac.
McCrary Lot 59 Not A Part:	108,906	2.50 Ac.
Total Project Area:	2,739,486	62.89 Ac.
PHASE 1	Area (sf)	
Phase-1 Residential Lot Area:	584,038	13.41 Ac.
Phase-1 Common Area:	455,895	10.47 Ac.
Phase-1 Right-of-way Area:	99,531	2.28 Ac.
Phase Total:	1,139,464	26.16 Ac.
PHASE 2	Area (sf)	
Phase-2 Residential Lot Area:	618,345	14.20 Ac.
Phase-2 Common Area:	286,954	6.59 Ac.
Phase-2 Right-of-way Area:	81,337	1.87 Ac.
Phase Total:	986,636	22.65 Ac.
PHASE 3	Area (sf)	
Phase-3 Residential Lot Area:	298,996	6.86 Ac.
Phase-3 Common Area:	241,688	5.55 Ac.
Phase-3 Right-of-way Area:	72,702	1.67 Ac.
Phase Total:	613,386	14.08 Ac.
Total Project Area:	**2,739,486**	62.89 Ac.

Built-Upon Area Data:		
PHASE 1	Area (sf)	
Phase-1 Residential Lots:	160,610	
Phase-1 Roadways:	66,771	
Phase-1 Sidewalks:	21,400	
Phase-1 Misc. Amenities:	10,610	
Phase Total:	259,391	5.95 Ac.
PHASE 2	Area (sf)	
Phase-2 Residential Lots:	170,045	
Phase-2 Roadways:	53,130	
Phase-2 Sidewalks:	17,525	
Phase-2 Misc. Amenities:	2,315	
Phase Total:	243,015	5.58 Ac.
PHASE 3	Area (sf)	
Phase-3 Residential Lots:	82,224	
Phase-3 Roadways:	49,196	
Phase-3 Sidewalks:	16,800	
Phase-3 Misc. Amenities:	6,850	
Phase Total:	155,070	3.56 Ac.
Total Built-Upon Area:	**657,476**	15.09 Ac.
% Built-Upon Area:	**24.00%**	



Attachment B

Certification Forms

The following blank Designer Certification forms are included and specific for this project:

- As-Built Permittee Certification
- As-Built Designer's Certification for Low Density Projects

A separate certification is required for each SCM. These blank certification forms may be copied and used, as needed, for each SCM and/or as a partial certification to address a section or phase of the project.

AS-BUILT PERMITTEE CERTIFICATION

I hereby state that I am the current permittee for the project named above, and I certify by my signature below, that the project meets the below listed Final Submittal Requirements found in NCAC 02H.1042(4) and the terms, conditions and provisions listed in the permit documents, plans and specifications on file with or provided to the Division.

☐ Check here if this is a partial certification. Section/phase/SCM #?_____

☐ Check here if this is part of a Fast Track As-built Package Submittal.

Printed Name_____Signature_____

I, _____, a Notary Public in the State of _____

County of _____, do hereby certify that _____

personally appeared before me this _____ day of _____, 20_____

and acknowledge the due execution of this as-built certification. (SEAL)

Witness my hand and official seal

_____

My commission expires _____

Permittee's Certification NCAC .1042(4)	Completed / Provided	N/A
A. DEED RESTRICTIONS / BUA RECORDS		
1. The deed restrictions and protective covenants have been recorded and contain the necessary language to ensure that the project is maintained consistent with the stormwater regulations and with the permit conditions.	Y or N	
2. A copy of the recorded deed restrictions and protective covenants has been provided to the Division.	Y or N	
3. Records which track the BUA on each lot are being kept. (See Note 1)	Y or N	
B. MAINTENANCE ACCESS		
1. The SCMs are accessible for inspection, maintenance and repair.	Y or N	
2. The access is a minimum of 10 feet wide.	Y or N	
3. The access extends to the nearest public right-of-way.	Y or N	
C. EASEMENTS		
1. The SCMs and the components of the runoff collection / conveyance system are located in recorded drainage easements.	Y or N	
2. A copy of the recorded plat(s) is provided.	Y or N	
D. SINGLE FAMILY RESIDENTIAL LOTS - Plats for residential lots that have an SCM include the following:	Y or N	
1. The specific location of the SCM on the lot.	Y or N	
2. A typical detail for the SCM.	Y or N	

3. A note that the SCM is required to meet stormwater regulations and that the lot owner is subject to enforcement action as set forth in NCGS 143 Article 21 if the SCM is removed, relocated or altered without prior approval.	Y or N	
E. OPERATION AND MAINTENANCE AGREEMENT	Y or N	
1. The O&M Agreement is referenced on the final recorded plat.	Y or N	
2. The O&M Agreement is recorded with the Register of Deeds and appears in the chain of title.	Y or N	
F. OPERATION AND MAINTENANCE PLAN – maintenance records are being kept in a known set location for each SCM and are available for review.	Y or N	
G. DESIGNER'S CERTIFICATION FORM – has been provided to the Division.	Y or N	

Note 1- Acceptable records include ARC approvals, as-built surveys, and county tax records.

Provide an explanation for every requirement that was not met, and for every "N/A" below. Attach additional sheets as needed.

AS-BUILT DESIGNER'S CERTIFICATION FOR LOW DENSITY PROJECTS

I hereby state that I am a licensed professional and I certify by my signature and seal below, that I have observed the construction of the project named above to the best of my abilities with all due care and diligence, and that the project meets all of the MDC found in 15A NCAC 02H.1003, in accordance with the permit documents, plans and specifications on file with or provided to the Division, except as noted on the "AS-BUILT" drawings, such that the intent of the stormwater rules and the general statutes has been preserved.

☐ Check here if this is a partial certification. Section or phase_____
☐ Check here if this is part of a Fast-Track As-Built Package Submittal per 15A NCAC 02H .1044(3).
☐ Check here if the Designer did not observe the construction but is certifying the project.
☐ Check here if pictures of the project are provided.

Printed Name_____Signature _____

NC Registration Number_____Date _____

SEAL:

Consultant's Mailing Address:

_____

City:_____State:_____ Zip:_____

Phone:(___) _____

Consultant's Email address:

_____

① Circle N if the as-built value differs from the Plan/permit. If N is circled, provide an explanation on page 3.
② N/E = Not Evaluated (provide explanation on page 2). ③N/A = Not Applicable to this project/plan.

Consultant's Certification (MDC 15A NCAC 02H .1003)			
Project Density and Built-Upon Area	①As-built	②N/E	③N/A
1. The project has areas of high density based on natural drainage area boundaries, variations in land use or construction phasing.	Y or N		
2. The project's built-upon area does not exceed the maximum limit specified in the permit.	Y or N		
Dispersed Flow	①As-built	②N/E	③N/A
1. The project maximizes dispersed flow through vegetated areas and minimizes channelized flow.	Y or N		

Vegetated Conveyances	①As-built	②N/E	③N/A
1. Stormwater that is not released as dispersed flow is transported by vegetated conveyances.	Y or N		
2. The project has a minimal amount of non-vegetated conveyances to reduce erosion.	Y or N		
3. Other than minimal piping under driveways and roads, no piping has been added beyond what is shown on the approved plans.	Y or N		
4. Side slopes are no steeper than 3H:1V.	Y or N		
5. The conveyance does not erode in response to the peak flow from the 10-year storm.	Y or N		
Curb outlet systems (if applicable)	①As-built	②N/E	③N/A
1. The swale or vegetated area can carry the peak flow from the 10-year storm at a non-erosive velocity.	Y or N		
2. The longitudinal slope of the swale or vegetated areas does not excee 5%.	Y or N		
3. The swale has a trapezoidal cross-section and a minimum bottom wid of two feet.	Y or N		
4. The minimum length of the swale or vegetated area is 100 feet.	Y or N		
5. Side slopes are no steeper than 3H:1V.	Y or N		
6. The project utilizes treatment swales designed per Section .1061 in lieu of the curb outlet system requirements.	Y or N		
Vegetated Setbacks (if applicable)	①As-built	②N/E	③N/A
1. The width of the vegetated setback is at least 50'.	Y or N		
2. The width of the vegetated setback has been measured from the norm pool of impounded waters, the MHW line of tidal waters, or the top of bank of each side of rivers or streams.	Y or N		
3. The vegetated setback is maintained in grass or other vegetation.	Y or N		
4. BUA that meets the requirements of NCGS 143-214.7(b2)(2) is locate in the setback.	Y or N		
5. BUA that does NOT meet the requirements of NCGS 143-214.7(b2)(2) located within the setback and is limited to: • Publicly-funded linear projects (road, greenway, or sidewalk) • Water dependent structures • Minimal footprint uses such as poles, signs, utility appurtenances, and security lights.	Y or N		
6. The amount of BUA within the setback is minimized, and channeling of the runoff from the BUA has been avoided.	Y or N		

7. Stormwater is not discharged (via swale or pipe) through a vegetated setback. Stormwater is released at the edge of the setback and allowed to flow through the setback as dispersed flow.	Y or N		
Outlets	①As-built	②N/E	③N/A
1. Stormwater outlets do not cause erosion downslope of the discharge point during the peak flow from the 10-year storm.	Y or N		
Variations	①As-built	②N/E	③N/A
1. The project has variations from the MDC that were not previously approved. (Modification may be required.)	Y or N		
Deed restrictions (if applicable)	①As-built	②N/E	③N/A
1. Deed restrictions are recorded and ensure that the project and the BUA will be maintained in perpetuity consistent with the permit, approved plans, and specifications.	Y or N		
For Subdivisions Only (Residential or Commercial)	①As-built	②N/E	③N/A
1. The number of platted lots is consistent with the approved plans.	Y or N		
2. The project area is consistent with the approved plans.	Y or N		
3. The layout of the lots and streets is consistent with the approved plan.	Y or N		
4. The width / radius of streets, paved accesses, cul-de-sacs and sidewal is consistent with the approved plan.	Y or N		
5. No piping, other than those minimum amounts needed under a driveway or under a road, has been added.	Y or N		
6. The lot grading, road grading, vegetated conveyances, piping, inverts, and elevations are consistent with the approved plans.	Y or N		

Provide an explanation below for every MDC that was not met, and for every item marked "N/A" or "N/E." Attach additional pages as needed.