



## WMCPR – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT CONSTRUCTION PLAN DISAPPROVAL

<b>Project Name</b>	The Preserve at Moody Farm	<b>Watershed</b>	Lower Neuse	<b>Jurisdiction</b>	Rolesville
<b>Date Received</b>	12/16/2024	<b>Date Processing Initiated</b>	12/16/2024	<b>Disturbed Acreage</b>	19
<b>S&amp;E Permit Number</b>	SEC-137379-2024	<b>S&amp;E Plan Review Fee</b>	\$4750 PAID	<b>S&amp;E Permit Fee</b>	\$4750 PENDING
<b>SW Permit Number</b>	SWF-137381-2024	<b>SW Plan Review Fee</b>	\$2500 PAID	<b>SW Permit Fee</b>	\$2500 PENDING

### Applicant:

Name: Garrick Wier  
110 Horizon Drive, Suite 320, Raleigh,  
Address: NC 27615  
Phone: 240-610-9404  
Email: [gwier@carusohomes.com](mailto:gwier@carusohomes.com)

### Engineer:

Name: Jakob Klein / American Engineering  
4020 Westchase Boulevard, Suite 450, Raleigh,  
Address: NC 27607  
Phone: 919-469-1101  
Email: NA

**Plan Date/Revision Date:** 12/16/2024

<b>Review Status:</b> 01/15/2025	<input checked="" type="checkbox"/>	<b>Construction Plan Not Approved and Incomplete</b> (Items 1-4 required to be a complete submittal)
	<input checked="" type="checkbox"/>	<b>Construction Plan Not Approved and requires additional information</b>

### Construction Plan Review Comments

Items marked with an "X" were noted as either insufficient or not provided. Engineer comments are in **RED** and provide the necessary requirements for construction plan approval.

References for Erosion and Sediment Control: [Wake County Unified Development Ordinance \(UDO\) Article 10](#)

References for Stormwater Management are as follows:

**ROLESVILLE:** Town of Rolesville Unified Development Ordinance (UDO) [Section 7.5: Stormwater Management Standards](#)

**WENDELL:** Town of Wendell Unified Development Ordinance (UDO) [Chapter 6: Environmental Protection, adopted 7/26/10](#).

**ZEBULON:** Town of Zebulon, NC Code of Ordinances: [Chapter 151 and Chapter 152.249](#).

<input checked="" type="checkbox"/>	1.	<a href="#">Erosion Control and Stormwater Joint Application</a> (Required to initiate processing) -Correct item 7, part I, to Lower Neuse -Correct item 12, part I, to <u>book of maps</u> not the deed book and page numbers
<input checked="" type="checkbox"/>	2.	<a href="#">Review Fees</a> (Required to initiate processing) <b>RESUBMITTALS:</b> The first resubmittal is free, but all subsequent Stormwater resubmissions require a \$150 Resubmission Fee and Erosion Control resubmissions require a \$75 Resubmission Fee



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<input checked="" type="checkbox"/>	3.	<p><a href="#">Notarized Wake County Financial Responsibility/Ownership Form</a> (Required to initiate processing)</p> <p>-In item 7, part A, provide telephone or email information from all owners</p> <p>-There appears to be work in both adjacent parcels to the north and south of this project (roadway connection), provide their deed information.</p> <p>-Since the FRP is listed as an individual, Garrick Wier, they must sign the FRO form, not another individual.</p> <p>-Provide letter of consent forms from <u>all property owners</u> giving permission to the financial responsible party to submit for permits and conduct land disturbing activities. <a href="https://s3.us-west-1.amazonaws.com/wakegov.com.if-us-west-1/s3fs-public/documents/2023-03/Landowner%20Consent%20Form%20Template%20Fillable%20Form.pdf">https://s3.us-west-1.amazonaws.com/wakegov.com.if-us-west-1/s3fs-public/documents/2023-03/Landowner%20Consent%20Form%20Template%20Fillable%20Form.pdf</a></p> <p><b>*Please confirm that Garrick Wier, as an individual, will be held financially liable. If the intention was that a company will be the FRP please change in item 1, part B. Additionally, items 2(a) and 2(b), will need to be filled out as needed if a company is listed as FRP.</b></p>	
<input checked="" type="checkbox"/>	4.	Other documents:	
	<input type="checkbox"/>	a.	Engineering Approval: Copy of approval notification for projects in a municipality's zoning jurisdiction
	<input checked="" type="checkbox"/>	b.	<p><b>401/404 Documentation</b> (Buffer determination letters, PCN application, comments, and approval)</p> <p>Documentation of wetland delineations.</p> <p>-Provide approval letters</p> <p>-Provide impact maps</p>
	<input type="checkbox"/>	c.	Encroachment agreement(s) completed, signed and notarized for all off-site construction
	<input checked="" type="checkbox"/>	d.	The erosion and sedimentation control plan must include the owner's written consent for the applicant to submit an erosion and sedimentation control plan and to conduct the anticipated land-disturbing activity if the applicant is not the owner of the land to be disturbed [10-30-2-(B)-(2)-(c)]
<input checked="" type="checkbox"/>	5.	<b>NCDOT Approval (Temporary Construction Entrances, Encroachment Agreements, etc.)</b>	
<input checked="" type="checkbox"/>	6.	<p>Cover letter stating the purpose of the submission, describing site drainage, stormwater management objectives, and how the proposed stormwater management plan will meet the objectives and be implemented</p> <p><b>RESUBMITTALS: A letter detailing any changes, comments, proposed solutions to review comments, etc.</b></p>	
<input type="checkbox"/>	7.	Copy of the USGS Quad Map with delineated project limits.	
<input type="checkbox"/>	8.	Copy of the Wake County Soil Survey map with delineated project limits from 1970 manuscript.	
<input checked="" type="checkbox"/>	9.	One (1) electronic copy of a complete set of construction drawings for 1st resubmission, five (5) copies for final approval.	
<input checked="" type="checkbox"/>	10.	<p>Two (2) copies of the Municipal Stormwater Design Tool; digital submittal and hardcopy (Site Data Sheet, Drainage Area Sheets, Site Summary Sheet, BMP Sheets, and BMP Summary sheet)</p> <p>-Offsite drainage should be taken into account.</p>	
<input checked="" type="checkbox"/>	11.	<p>Drainage Area Maps with stormwater discharge points and Tc flow paths (existing/post construction/post BMP)</p> <p>-Offsite drainage should be included.</p> <p>-Label the actual areas for each POD area.</p>	
<input checked="" type="checkbox"/>	12.	2 sets of Stormwater and Erosion Control Calculations:	




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<input checked="" type="checkbox"/>	a.	Sediment basin design (See website for <a href="#">Wake County design criteria</a> ) -For SEC calculations minimum C factor to use is 0.5, adjust calculation as needed. As an example SB#1 should have a $Q_{10} = (0.5 * 6.92 * 7.2) = 24.91$ cfs. See highlighted link above for more information. -Required volume should be drainage area multiplied by 1800. -Dewatering times should be between 3-5 days adjust SB#3 & SB#4. Comment above could impact dewatering times as required volume is used in dewatering calculations.
<input type="checkbox"/>	b.	Ditches, swales, and channels: $Q_{10}/V_{10}$ . Tractive force (shear stress), capacity and geometry.
<input type="checkbox"/>	c.	Dissipaters: $Q_{10}$ velocities, stone size and dimensions.
<input type="checkbox"/>	d.	Velocity calculations for stormwater runoff at points of discharge resulting from a 10-year storm after development were not provided or do not comply.
<input checked="" type="checkbox"/>	e.	Support data for all stormwater practice designs, such as inflow/outflow rates, stage/storage data, hydrographs, outlet designs, infiltration rates, water elevations, design output, summary, etc. -In municipal tool address notes and boxes in red. Address any comments that state "Does not match site date/acres".
<input checked="" type="checkbox"/>	f.	Other hydraulic and hydrologic computations critical to the plan/designs -For temporary sediment basin show SHWT if any are in flood prone soils. Temporary sediment ponds should not have a permanent pool of water, SHWT under temporary basin should have a minimum separation of 1' from SHWT.
<input type="checkbox"/>	g.	Signature, Date And Professional Seal: for all Stormwater design management proposals, i.e. calculations, BMP designs, operations/maintenance/budget/asbuilt/inspections/manuals.
<input checked="" type="checkbox"/>	13.	Draft Stormwater Agreement, Draft Maintenance Agreement
<input checked="" type="checkbox"/>	14.	Proposed Site Plan:
<input type="checkbox"/>	a.	Location/Vicinity Map
<input type="checkbox"/>	b.	North arrow, graphic scale, drafting version date, legend and professional seal
<input checked="" type="checkbox"/>	c.	Existing and proposed contours: plan and profiles for roadways -Provide some contour labels in temporary sediment ponds
<input type="checkbox"/>	d.	Boundaries of tract: including project limits
<input checked="" type="checkbox"/>	e.	Table with impervious calculations - existing and proposed impervious surfaces: roads, well lots, recreation sites, single family residences, etc. (consistent with the Municipal Stormwater Design Tool inputs) -Show in site plan, impervious should be divided among roadways, lots, and others.
<input type="checkbox"/>	f.	Show all Riparian Buffers [Article 9-21]; (Neuse: [15A NCAC 2B .0714])
<input type="checkbox"/>	g.	Delineation of current FEMA boundaries (floodway, flood fringe & future/0.2%)
<input checked="" type="checkbox"/>	h.	Proposed improvements: roads, buildings, parking areas, grassed, landscaped, and natural areas. *Can you confirm if this project will incorporate improvements along Rolesville road? If so, provide SEC measures as needed.
<input type="checkbox"/>	i.	Lot lines, lot numbers, road names, and impervious limit on each lot rounded to nearest whole number

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<input type="checkbox"/>	j.	Utilities: community water and sewer, plan/profiles, easements and sediment controls.
<input type="checkbox"/>	k.	Stormwater Network: inlets, culverts, swales, ditches, channels and drainage easements.
<input checked="" type="checkbox"/>	l.	<p>TEMPORARY SEDIMENT CONTROLS: locations and dimensions of gravel entrances, diversion ditches, silt fence, sediment basins, inlet protection, etc.</p> <p><b>General Erosion Control Comments</b></p> <p>-At a minimum, Erosion and Sediment Control Plan must show 3 separate phases(stages):</p> <ol style="list-style-type: none"> <li>1. Perimeter erosion controls only, this does include temporary basins, – required for Certificate of Compliance. (This has been provided)</li> <li>2. Rough grade with sediment basins in place. (At this phase the basin should not appear converted yet nor should fine grading items be shown such as curb and gutter)</li> <li>3. Fine/Final grade with sediment basins converted to SCMs.</li> </ol> <p><b>EC Stage 1</b></p> <p>-Label the temporary diversions, should be able to identify calculations from sheet C7.0</p> <p>-Provide silt fence outlets at all low points and at every 100 ft of run or whenever 0.25 acres of drainage has been reached along the silt fence.</p> <p>-Show construction entrance dimensions</p> <p>-Show skimmer attached to permanent riser for all the temporary ponds to be converted</p> <p>-Temporary diversion does not connect to SB#4 or that do not show the temporary slope pipe connecting the diversion ditch the sediment pond like in SB#1. Please show temporary pipes.</p>  <p><b>EC Stages 2 &amp; 3</b></p> <p>-Incorporate stage 1 erosion control review comments into stages 2 &amp; 3 erosion control design sheets, if applicable</p> <p>-In stage 2 basins should not appear converted.</p>
<input type="checkbox"/>	m.	Sediment Basin Dewatering Bags: Provide a dewatering bag and location pad adjacent to all sediment basins for maintenance and closeout. Label the bag and pad with dimensions.

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<input type="checkbox"/>	n.	Stream Culvert Construction Phasing: Provide a detailed construction sequence for installation of culverts at streams and show the stream crossing(s) on the erosion control plan sheets. Include all applicable details related to managing the stream flow during the culvert installation (silt bags, pumparound, impervious dikes, etc.).
<input checked="" type="checkbox"/>	o.	<p>Stream Protection: Design temporary sediment storage during the construction phase of stream culvert installation on all four-corners of the stream crossing (where applicable) and show on the erosion control plan sheets. Provide erosion control blankets on all permanent slopes of culvert at stream crossing.</p> <p>-Please provide sediment storage on both sides of the crossings, shown on EC plans OR add diversion to direct additional stormwater to the propose temporary basins. The general idea is to block any incoming to stormwater to prevent the stream/wetland from becoming a sediment basin.</p> <p><b>“Four-Corners” Stream Protection</b></p>  <p>The diagram illustrates a stream crossing with four corners. At the top left, a 'Rock Check Dam' is shown. To its right is a 'Sediment Basin with Skimmer'. Below the check dam is a 'Temporary Diversion Channel'. To the right of the channel is an 'Earth Berm'. Further right is a 'Silt Fence'. At the bottom left is a 'Sediment Trap with Rock Dam'. To its right is a 'Stormwater Pond w/ Skimmer'. Dashed lines indicate 'Construction Limits' on both sides of the stream crossing.</p>
<input checked="" type="checkbox"/>	p.	<p>Location and requirements for stockpiles (see website for <a href="#">Stockpile Requirements</a>)</p> <p>-Silt fence and outlets should be 25' from base of stockpile</p>
<input checked="" type="checkbox"/>	q.	<p><a href="#">Wake County Construction Sequence</a> (Provide project specific details as needed)</p> <p>-Provide three phase specific construction sequences</p> <p>-Please add to the construction sequence incorporate "Excavate trench, install section(s) of pipe, backfill and stabilize ground disturbance within a working day." or similar language.</p>
<input type="checkbox"/>	r.	<p><a href="#">Wake County Basin Removal Sequence</a></p> <p>Wake County must grant permission to convert the sediment basin over to stormwater use prior to completing any related work (construction sequence or note elsewhere on the plan should indicate this).</p>
<input type="checkbox"/>	s.	<a href="#">Wake County Construction Details</a>
<input type="checkbox"/>	t.	<a href="#">Wake County Stabilization Guidelines</a>
<input type="checkbox"/>	u.	DETAILED COMMENTS REGARDING TEMPORARY SEDIMENT CONTROLS:





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<input checked="" type="checkbox"/>	v.	PERMANENT EROSION CONTROLS: locations and dimensions of dissipaters, ditch linings, armoring, level spreaders, retaining walls, etc. <i>-On plans label the permanent ditches to match the table in sheet C7.0</i>
<input type="checkbox"/>	w.	DETAILED COMMENTS REGARDING PERMANENT SEDIMENT CONTROLS:
<input type="checkbox"/>	x.	PERMANENT STORMWATER MANAGEMENT STRUCTURES: locations and types of all proposed stormwater management structures ( <i>grass swale, wet/dry detention basin, filtering/infiltration basin, bioretention, etc.</i> )
<input type="checkbox"/>	y.	DETAILED COMMENTS REGARDING PERMANENT STORMWATER MANAGEMENT:
<input type="checkbox"/>	z.	<p>Proposed stormwater easements, access lanes, and backwater easements. Provide and label minimum 20 ft. <i>Access easement and 10 ft. Maintenance easement from toe of stormwater pond embankment.</i>  <i>-Be sure these easements are not located in buffers or outside their lot.</i></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>GENERAL MDC 9: EASEMENTS.</b>          All SCMs and associated maintenance accesses on privately owned land except for those located on single family residential lots shall be located in permanent recorded easements. The SCM shall be shown and labeled within the easement. These easements shall be granted in favor of the party responsible for enforcing the stormwater program under which the SCMs were approved.</p> </div> <p>SCMs must have access and maintenance easements to provide the legal authority for inspections, maintenance personnel and equipment. The location and configuration of easements must be established during the design phase and should be clearly shown on the design drawings. The entire footprint of the SCM system must be included in the access and maintenance easement, plus an additional ten or more feet around the SCM to provide enough room to complete maintenance tasks. This SCM system includes the side slopes, forebay, riser structure, SCM device, and basin outlet, dam embankment, outlet, and emergency spillway.</p> <p>In addition to the provisions required by Rule, it is recommended that maintenance easements specify who may make use of the easement and for what purposes. Where feasible, it is also recommended that SCMs be posted with conspicuous signage stating who is responsible for required maintenance and annual inspection. Signage should be maintained so as to remain visible and legible.</p>
<input type="checkbox"/>	aa.	A note should be added to the recorded plat distinguishing areas of disconnected impervious
<input type="checkbox"/>	ab.	<p>RESIDENTIAL ONLY Perpetuity statement</p> <p><i>Maximum Impervious Area Square Footage on each Individual Lot will be Stringently Enforced with no Exceptions into Perpetuity. Plans approved with a maximum impervious surface of (insert) SF per lot.</i></p>

### Standards and Requirements

Items marked with an "X" note relevant standards to be applied to the proposed development. Notes in RED provide review comments and/or any required elements to comply with standard.

Ordinance references are shown in brackets.



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<input checked="" type="checkbox"/>	15.	<p><b>Stormwater Review Required</b> - All residential subdivision development must submit a plan to comply with the applicable municipalities' stormwater ordinance. Office, institutional, commercial or industrial development that <u>disturbs</u> greater than 20,000 square feet is required to comply with the stormwater management regulations. Development and redevelopment that disturb less than 20,000 square feet are not exempt if such activities are part of a larger common plan of development or sale, even though multiple, separate or distinct activities take place at different times on different schedules.</p> <p><b>Rolesville</b> [7.5.1(E)], <b>Wendell</b> [ 6.5(F)], <b>Zebulon</b> [151.05]</p>
<input checked="" type="checkbox"/>	16.	<p><b>Stormwater Permit</b> – is required for all development and redevelopment unless exempt pursuant to the Code of Ordinances. A permit may only be issued subsequent to a properly submitted, reviewed and approved stormwater management plan and permit application.</p> <p><b>Rolesville</b> [7.5.1(E)(3)], <b>Wendell</b> [6.5(F)(3)], <b>Zebulon</b> [151.21(A)]</p> <p>Note: A permit may not be required if there are no post-construction requirements (i.e. SCMs).</p>
<input checked="" type="checkbox"/>	17.	<p><b>SCMs</b> - For projects requiring stormwater treatment for quality and/or quantity control, the applicant must</p> <ol style="list-style-type: none"> <li>1) comply with the <a href="#">NC Stormwater Design Manual</a> <b>Rolesville</b> [7.5.1(G)], <b>Wendell</b> [6.5(H)], <b>Zebulon</b> [151.07]</li> <li>2) as well as <i>Completion of Improvements and Maintenance</i>, prior to issuance of a certificate of compliance or occupancy. <b>Rolesville</b> [7.5.5], <b>Wendell</b> [6.5(O)], <b>Zebulon</b> [151.50 – 151.56]</li> </ol>
<input type="checkbox"/>	18.	<p><b>Standards Based on Project Density</b>- In accordance with the definitions, projects are identified as Ultra Low-Density (15% or less Built-Up Area, referred to as BUA, and less than one dwelling unit per acre), Low-Density (more than 15% BUA and no more than 24% BUA), and High-Density (24% or more BUA).</p> <p><b>Rolesville</b> [7.5.4], <b>Wendell</b> [ 6.5(M)], <b>Zebulon</b> [151.35]</p>
	<input type="checkbox"/>	<p><b>Standards for Ultra-Low and Low-Density Projects:</b></p> <ul style="list-style-type: none"> <li>• Use of vegetated conveyances to maximum extent practicable</li> <li>• Location of development and redevelopment outside Riparian Buffer and Flood Protection Zones</li> <li>• Recorded deed restrictions or protective covenants to ensure future development maintains consistency with approved project plans</li> <li>• Permanent SCMs (Stormwater Control Measures) are to be designed in accordance with and as specified in the North Carolina Department of Environmental Quality's Design Manual.</li> <li>• For Low-Density only, no net increase in peak flow leaving the site from the pre- development conditions for the 1 yr-24hr storm. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.</li> <li>• Residential runoff after development must not exceed the Target Curve Numbers listed in the chart "Maximum Composite Curve Number, by Soil Group".</li> <li>• Ultra-Low and Low-Density projects may be eligible for target curve number credits.</li> </ul> <p><b>Wendell Only:</b> Nitrogen export limited to 3.6 pounds per acre per year unless project achieves classification as an LID Project.</p> <p><b>Rolesville</b> [7.5.4(A)(1-3)], <b>Wendell</b> [6.5(M)(1-3)], <b>Zebulon</b> [151.35(A-C)]</p>



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	<input type="checkbox"/>	<p><b><u>Standards for High-Density Projects:</u></b></p> <ul style="list-style-type: none"> <li>Measures shall control and treat runoff from the first inch of rain. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.</li> <li>Structural measures shall be designed to have a minimum of 85 % average annual removal for Total Suspended Solids (TSS)</li> <li>Permanent SCMs (Stormwater Control Measures) are to be designed in accordance with and as specified in the North Carolina Department of Environmental Quality's Design Manual.</li> <li>No net increase in peak flow leaving the site from the pre -development conditions for the 1 yr-24hr storm. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.</li> <li>Location of development and redevelopment outside Riparian Buffer and Flood Protection Zones <b>Rolesville</b> [7.5.4(A)(4)], <b>Wendell</b> [6.5(M)(4)], <b>Zebulon</b> [151.35(D)]</li> </ul>
	<input type="checkbox"/>	<p><b><u>General Standards:</u></b></p> <ul style="list-style-type: none"> <li>Downstream Impact Analysis – DIA must be performed in accordance with the “10% rule”, and a copy provided with the application.</li> </ul> <p><b>Rolesville</b> [7.5.4(B)(1)], <b>Wendell</b> [6.5(N)(1)], <b>Zebulon</b> [151.36(A)]</p>
	<input type="checkbox"/>	<p><b><u>Low Impact Development (LID) Classification:</u></b></p> <ul style="list-style-type: none"> <li>All development or redevelopment may be submitted for LID classification</li> <li>Development must mimic the pre-developed hydrologic conditions of the site, as defined as “woods in good condition” for the 2-yr, 24 hr storm, within 10%.</li> <li>Techniques required to achieve LID classification <ul style="list-style-type: none"> <li>➤ Natural site design</li> <li>➤ Bio-retention systems or on-site infiltration (at least one must be used)</li> <li>➤ At least <b>two</b> other techniques from the list provided in <b>Rolesville</b> [7.5.4(B)(5)(e)] and <b>Zebulon</b> [151.36(E)(5)]</li> <li>➤ At least <b>one</b> other technique from the list provided in <b>Wendell</b> [6.5(N)(5)(e)]</li> </ul> </li> </ul>
<input checked="" type="checkbox"/>	<b>19.</b>	<p><b><u>Downstream Impact Analysis</u></b> – Required analysis using the “10% rule” drainage area evaluation of the 10-year, 24-hour peak flow of the pre/post development to determine if the project will have any impacts on flooding or channel degradation downstream of the project site in accordance with <b>Rolesville</b> [1.2.4.(B)(1)] <b>Wendell</b> [6.5(N)(1)], <b>Zebulon</b> [151.36(A)].</p> <p style="color: red;">-Provide calculation and drainage map</p>
<p><b>Wake County UDO Article 10 - Erosion and Sedimentation Control Requirements</b>  <b>(Applies to Rolesville, Wendell and Zebulon)</b></p>		
<input checked="" type="checkbox"/>	<b>20.</b>	<p><b><u>Erosion Control:</u></b> This project will require a Land Disturbance Permit if it involves <u>greater than one acre of disturbance</u>. <b>Note:</b> If the land disturbance is part of a common plan of development that is greater than one acre of disturbance, an Approved Erosion and Sediment Control Plan and Land Disturbance Permit are required for each individual tract or parcel disturbance within the common plan of development, regardless of land disturbance acreage in each tract/parcel.</p>





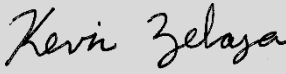
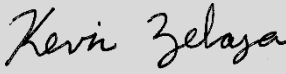
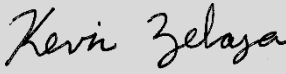
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<input checked="" type="checkbox"/>	21.	<b>10-20-1 Minimum Standards</b> - All soil erosion and sedimentation control plans and measures must conform to the minimum applicable standards specified in <i>North Carolina's Erosion and Sediment Control Planning and Design Manual</i> and the <i>Wake County Sedimentation and Erosion Control Plan Review Manual</i> . Erosion control devices must be installed to prevent any offsite sedimentation for any construction site regardless of the size of the land disturbance.	
<input type="checkbox"/>	22.	<b>10-20-3 Operation in Lakes or Natural Watercourses</b> -Land disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse must minimize the extent and duration of disruption of the stream channel. Where relocation of a stream forms an essential part of the proposed activity, the relocation must minimize unnecessary changes in the stream flow characteristics.	
<input type="checkbox"/>	23.	<b>10-20-10 Standards for High Quality Water (HQW) Zones</b> Land-disturbing activities to be conducted in High Quality Water Zones must be designed as follows:	
<input type="checkbox"/>	a.	Uncovered areas in High Quality Water (HQW) zones must be limited at any time to a maximum total area of 20 acres within the boundaries of the tract.	
<input type="checkbox"/>	b.	<b>Maximum Peak Rate of Runoff</b> - Erosion and sedimentation control measures, structures, and devices within HQW zones must be planned, designed and constructed to provide protection from the runoff of the 25-year storm.	
<input type="checkbox"/>	c.	<b>Settling Efficiency</b> - Sediment basins within HQW zones must be designed and constructed so that the basin will have a settling efficiency of at least 70% for the 40 micron (0.04mm) size soil particle transported into the basin by the runoff of that 2-year storm which produces the maximum peak rate of runoff.	
<input type="checkbox"/>	d.	<b>Grade</b> - The angle for side slopes must be sufficient to restrain accelerated erosion (side slopes no steeper than 2 horizontal to 1 vertical if a vegetative cover is used for stabilization unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices, structural devices or other acceptable ditch liners)	
<input type="checkbox"/>	24.	<b>Senate Bill 1020</b> ; "SECTION 3.(h) Additional standards for land-disturbing activities in the water supply watershed":	
<input type="checkbox"/>	a.	Erosion and sedimentation control measures, structures, and devices shall be planned, designed, and constructed to provide protection from the runoff of the 25-year storm	
<input type="checkbox"/>	b.	Sediment basins shall be planned, designed, and constructed so that the basin will have a settling efficiency of at least seventy percent (70%) for the 40-micron size soil particle transported into the basin by the runoff of the two-year storm that produces the maximum peak rate of runoff	
<input type="checkbox"/>	c.	Newly constructed open channels shall be planned, designed, and constructed with side slopes no steeper than two horizontal to one vertical if a vegetative cover is used for stabilization unless soil conditions permit steeper slopes or where the slopes are stabilized by using mechanical devices, structural devices, or other acceptable ditch liners.	
<b>Neuse Riparian Buffer Rules</b>			
<input checked="" type="checkbox"/>	25.	Due to the location of this project, it should be noted that a rule to protect and maintain existing buffers along watercourses in the Neuse River Basin became effective on July 22, 1997. The <b>Neuse River Riparian Area Protection and Maintenance Rule (15A NCAC 2B.0233)</b> applies to all perennial and intermittent streams, lakes, ponds and estuaries in the Neuse River Basin with forest vegetation on the adjacent land or "riparian area".	
<b>North Carolina General Statute § 113A-61 (c) - Right to Appeal the Decision</b>			



Wake County Environmental Services Department  
Water Quality Division, Watershed Management Section  
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**WMCPR – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT  
CONSTRUCTION PLAN DISAPPROVAL**

<input checked="" type="checkbox"/>	<b>26.</b>	The applicant has the right to appeal this decision per North Carolina General Statute § 113A-61 (c).				
<table><tr><td>Environmental Engineer:</td><td> Kevin Zelaya, PE</td><td>Contact Info:</td><td><a href="mailto:kevin.zelaya@wake.gov">kevin.zelaya@wake.gov</a> 919-856-7473</td></tr></table>			Environmental Engineer:	 Kevin Zelaya, PE	Contact Info:	<a href="mailto:kevin.zelaya@wake.gov">kevin.zelaya@wake.gov</a> 919-856-7473
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