



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

Project Name	<u>Kalas Falls Phase 3</u>	Jurisdiction	<u>Town of Rolesville</u>	Watershed	<u>Lower Neuse</u>
Date Received	<u>1/14/2021</u>	Date Processing Initiated	<u>4/14/2021</u>	Disturbed Acreage	<u>33.44</u>
S&E Permit Number	<u>SEC-054348-2021</u>	S&E Plan Review Fee	<u>\$8,360 PAID</u>	S&E Permit Fee	<u>\$8,360 PENDING</u>
SW Permit Number	<u>SWF-054358-2021</u>	SW Plan Review Fee	<u>\$2,500 PAID</u>	SW Permit Fee	<u>\$2,500 PENDING</u>

Applicant:	Engineer:
Name: <u>Mitchell Mill Road Investors, LLC</u> <u>105 Weston Estates Way</u>	Name: <u>American Engineering / Jack Harman, PE</u>
Address: <u>Cary, NC 27513</u>	Address: <u>875 Walnut St., Suite 360, Cary, NC 27511</u>
Phone: <u>919-481-3000</u>	Phone: <u>919-469-1101</u>
Email: <u>karl@prestondev.com</u>	Email: <u>jharman@american-ea.com</u>

Plan Date/Revision Date: 2/19/2021

Review Status: 4/15/2021	<input checked="" type="checkbox"/>	Construction Plan Not Approved and Incomplete (Items 1-4 required to be a complete submittal)
	<input checked="" type="checkbox"/>	Construction Plan Not Approved and requires additional information

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 type="checkbox"/>	1.	Erosion Control and Stormwater Joint Application (Required to initiate processing)
<input type="checkbox"/>	2.	Review Fees (Required to initiate processing) RESUBMITTALS: The first resubmittal is free, but all subsequent Stormwater resubmissions require a \$150 Resubmission Fee and Erosion Control resubmissions require a \$75 Resubmission Fee
<input type="checkbox"/>	3.	Notarized Wake County Financial Responsibility/Ownership Form (Required to initiate processing).
<input checked="" type="checkbox"/>	4.	Other documents:



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<input checked="" type="checkbox"/>	a.	Documentation of construction plan approval from the municipality or permission to proceed with early grading prior to town approval. Please provide approval from the Town of Rolesville once received.
<input type="checkbox"/>	b.	401/404 Documentation (Buffer determination letters, PCN application, comments, and approval).
<input type="checkbox"/>	c.	NCDOT Approval
<input type="checkbox"/>	d.	Encroachment agreement(s) completed, signed and notarized for all off-site construction.
<input checked="" type="checkbox"/>	5.	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 RESUBMITTALS: A letter detailing any changes, comments, proposed solutions to review comments, etc.
<input type="checkbox"/>	6.	Copy of the USGS Quad Map with delineated project limits in color.
<input type="checkbox"/>	7.	Copy of the Wake County Soil Survey map with delineated project limits from the 1970 manuscript.
<input type="checkbox"/>	8.	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) The tool is located at http://www.wakegov.com/water/stormwater/management/program/Pages/default.aspx .
<input type="checkbox"/>	9.	Drainage Area Maps with stormwater discharge points and Tc flow paths (existing/post construction/post BMP).
<input checked="" type="checkbox"/>	10.	2 sets of Stormwater and Erosion Control Calculations:
<input type="checkbox"/>	a.	Sediment basin design (See website for Wake County design criteria)
<input type="checkbox"/>	b.	Ditches, swales, and channels: Q10/V10. Tractive force (shear stress), capacity and geometry.
<input checked="" type="checkbox"/>	c.	Dissipaters: Q10 velocities, stone size and dimensions. Please provide for all temporary sediment basins.
<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 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.
<input type="checkbox"/>	f.	Other hydraulic and hydrologic computations critical to the plan/designs.
<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"/>	11.	One (1) copy of a complete set of construction drawings for 1st resubmission, five (5) final copies for approval.
<input type="checkbox"/>	12.	Draft Stormwater Agreement, Draft Maintenance Agreement.
<input checked="" type="checkbox"/>	13.	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. Please provide contour elevation labels for existing contours on erosion control plan sheets.



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<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). Please provide this table <u>in the construction plan</u> with a breakout of impervious total for lots, streets, sidewalks, mail kiosk, etc.
<input type="checkbox"/>	f.	Proposed improvements: roads, buildings, parking areas, grassed, landscaped, and natural areas.
<input type="checkbox"/>	g.	Lot lines, lot numbers, road names, and impervious limit on each lot rounded to nearest whole number.
<input type="checkbox"/>	h.	Utilities: community water and sewer, plan/profiles, easements and sediment controls.
<input type="checkbox"/>	i.	Stormwater Network: inlets, culverts, swales, ditches, channels and drainage easements.
<input checked="" type="checkbox"/>	j.	<p>TEMPORARY SEDIMENT CONTROLS: locations and dimensions of gravel entrances, diversion ditches, silt fence, sediment basins, inlet protection, etc.</p> <p><u>Stage 1 Erosion Control Comments</u></p> <p>-Perimeter erosion control measures are difficult to see; please increase line weights and scale of devices.</p> <p>-Label skimmer size and orifice diameter of each sediment basin in accordance with calculations.</p> <p><u>Stage 2 Erosion Control Comments</u></p> <p>-Incorporate Stage 1 erosion control comments.</p> <p>-Provide concrete washout area adjacent to construction entrances.</p> <p>-Provide erosion control blanket for all slopes 8 ft. in height or greater.</p> <p>-Place earth berm or sandbag diversion at end of each stub road & cul-de-sacs to divert flow to inlets.</p>
<input type="checkbox"/>	k.	PERMANENT EROSION CONTROLS: locations and dimensions of dissipaters, ditch linings, armoring, level spreaders, retaining walls, etc.
<input checked="" type="checkbox"/>	l.	Location and requirements for stockpiles (see website for Stockpile Requirements) and place silt fence with silt fence outlet on low elevation side of topsoil stockpiles. Did not see Wake Co. Stockpile notes.
<input type="checkbox"/>	m.	Wake County Construction Details
<input type="checkbox"/>	n.	Wake County Construction Sequence (Provide project specific details as needed)
<input type="checkbox"/>	o.	Wake County Stabilization Guidelines
<input type="checkbox"/>	p.	Wake County Basin Removal Sequence 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).
<input type="checkbox"/>	q.	Show all Riparian Buffers [<i>Article 9-21</i>]; (Neuse: [15A NCAC 02B.0233 & 0242].
<input type="checkbox"/>	r.	Delineation of current FEMA boundaries (floodway, flood fringe & future/0.2%)
<input checked="" type="checkbox"/>	s.	Proposed stormwater easements, access lanes, and backwater easements. Provide 100 -year storm backwater easements if applicable for drainage inlets & stormwater detention ponds.
<input type="checkbox"/>	t.	A note should be added to the recorded plat distinguishing areas of disconnected impervious
<input type="checkbox"/>	u.	Location and type of all proposed stormwater management structures (<i>grass swale, wet/dry detention basin, filtering/infiltration basin, bioretention, etc.</i>).



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	<input type="checkbox"/>	v.	RESIDENTIAL ONLY Perpetuity statement <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>
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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.

Stormwater Management Requirements

<input checked="" type="checkbox"/>	17.	Stormwater Review Required - All residential subdivision development must submit a plan to comply with the applicable municipalities' stormwater ordinance. Office, institutional, commercial or industrial development that disturbs 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. Rolesville [7.5.1(E)], Wendell [6.5(F)], Zebulon [151.05]
<input checked="" type="checkbox"/>	18.	Stormwater Permit – 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. Rolesville [7.5.1(E)(3)], Wendell [6.5(F)(3)], Zebulon [151.21(A)] Note: A permit may not be required if there are no post-construction requirements (i.e. SCMs).
<input checked="" type="checkbox"/>	19.	SCMs - For projects requiring stormwater treatment for quality and/or quantity control, the applicant must 1) comply with the NC BMP Manual Rolesville [7.5.1(G)], Wendell [6.5(H)], Zebulon [151.07] 2) as well as <i>Completion of Improvements and Maintenance</i> , prior to issuance of a certificate of compliance or occupancy. Rolesville [7.5.5], Wendell [6.5(O)], Zebulon [151.50 – 151.56]
<input checked="" type="checkbox"/>	20.	Standards Based on Project Density - In accordance with the definitions, projects are identified as Ultra Low-Density (15% or less Built-Upon 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). Rolesville [7.5.4], Wendell [6.5(M)], Zebulon [151.35]



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<input checked="" type="checkbox"/>	<p><u>Standards for Ultra-Low and Low-Density Projects:</u></p> <ul style="list-style-type: none"> • Use of vegetated conveyances to maximum extent practicable • Location of development and redevelopment outside Riparian Buffer and Flood Protection Zones • Recorded deed restrictions or protective covenants to ensure future development maintains consistency with approved project plans • 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. • 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. • Residential runoff after development must not exceed the Target Curve Numbers listed in the chart “Maximum Composite Curve Number, by Soil Group”. • Ultra-Low and Low-Density projects may be eligible for target curve number credits. <p>Rolesville [7.5.4(A)(1-3)], Wendell [6.5(M)(1-3)], Zebulon [151.35(A-C)]</p>
<input checked="" type="checkbox"/>	<p><u>Standards for High-Density Projects:</u></p> <ul style="list-style-type: none"> • 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. • Structural measures shall be designed to have a minimum of 85 % average annual removal for Total Suspended Solids (TSS) • 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. • 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. • Location of development and redevelopment outside Riparian Buffer and Flood Protection Zones <p>Rolesville [7.5.4(A)(4)], Wendell [6.5(M)(4)], Zebulon [151.35(D)]</p>
<input checked="" type="checkbox"/>	<p><u>General Standards:</u></p> <ul style="list-style-type: none"> • Downstream Impact Analysis – DIA must be performed in accordance with the “10% rule”, and a copy provided with the application. <p>Rolesville [7.5.4(B)(1)], Wendell [6.5(N)(1)], Zebulon [151.36(A)]</p>
<input type="checkbox"/>	<p><u>Low Impact Development (LID) Classification:</u></p> <ul style="list-style-type: none"> • All development or redevelopment may be submitted for LID classification • 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%. • Techniques required to achieve LID classification <ul style="list-style-type: none"> ➤ Natural site design ➤ Bio-retention systems or on-site infiltration (at least one must be used) ➤ At least two other techniques from the list provided in Rolesville [7.5.4(B)(5)(e)] and Zebulon [151.36(E)(5)] <p>At least one other techniques from the list provided in Wendell [6.5(N)(5)(e)]</p>




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Wake County UDO Article 10 - Erosion and Sedimentation Control Requirements (Applies to Rolesville, Wendell and Zebulon)		
<input checked="" type="checkbox"/>	21.	Erosion Control: This project will require a Land Disturbance Permit if it involves <u>greater than one acre of disturbance</u> . See website for details.
<input checked="" type="checkbox"/>	22.	10-20-1 Minimum Standards - 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 checked="" type="checkbox"/>	23.	10-20-3 Operation in Lakes or Natural Watercourses -Land disturbing activity in connection with construction in, on, over, or under a lake of 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"/>	24.	10-20-10 Standards for High Quality Water (HQW) Zones 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.	Maximum Peak Rate of Runoff - 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.	Settling Efficiency - 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.	Grade - 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"/>	25.	Senate Bill 1020; "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.
Neuse Riparian Buffer Rules		



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<input checked="" type="checkbox"/>	26.	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 Neuse River Riparian Area Protection and Maintenance Rule (15A NCAC 2B.0233) 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".
Suggested Changes/Comments		
<input type="checkbox"/>	27.	
Environmental Consultant:	Jeevan Neupane, PE	Contact Info: jeevan.neupane@wakegov.com 919-819-8907
Wake County PE:	 Barney Blackburn, PE	Contact Info: barney.blackburn@wakegov.com 919-418-3791