



Pr	oject N	Name		Watershed	I	New or Expansion (N/E)?		
	roject creage		Existing Impervious SF		Proposed mpervious	Disturbed Acreage		
App	licant:			Engineer:				
1	Name			Name:				
	1.000		Address:					
Pl	none:		Phone:					
E	mail:			Email:				
Con	structio	on Pla	nn Review Submittal Package Requi	rements				
			elect all applicable items below and ts are for the <u>Wake County Unified L</u>	~				
	1.	Eros	ion Control and Stormwater Joint Ap	oplication (Requi	red to initiate proce	ssing)		
	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						
	3.	Notarized Wake County Financial Responsibility/Ownership Form (Required to initiate processing)						
		The application must include the owner's notarized 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)]						
	4.	Othe	er documents:					
		a.	PRELIMINARY ZONING AND SUBDIT subdivision or COSD approval, or B			notification (property description,		
		b.	Approval from either the Wake Conthe project location and type.	unty Subdivision	Section or Wake Cou	unty Zoning Section depending on		
		c.	FLOOD STUDY: Copy of approval no	otification from V	Vake County Floodpl	lain Management, (if applicable)		
		d.	401/404 Documentation (Buffer de	etermination lette	ers, PCN application,	comments, and approval)		
		e.	NCDOT Approval (Temporary Cons	truction Entrance	es, Encroachment Ag	reements, etc.)		
		f.	Encroachment agreement(s) comp	leted, signed and	notarized for all off	-site construction		
	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.						
	6.	Copy of the USGS Quad Map with delineated project limits						
	7.	Copy of the Wake County Soil Survey map from 1970 manuscript with delineated project limits						



8.	Draiı	(1) electronic copy of the Hybrid Stormwater Tool (<u>click here</u>); submit Excel workbook (Site Data Sheet, nage Area Sheets, Site Summary Sheet, BMP Sheets, and BMP Summary sheet) See the <u>Wake County</u> <u>mwater Manual</u> for guidance
9.	Drainage Area Maps with stormwater discharge points and Tc flow paths (existing/post construction/post BMP)	
	a.	For Water Supply Watersheds: Provide drainage map showing drainage acres to the drainage features for properties in the water supply watershed zoning districts
	b.	Drainage Area Map showing drainage areas to erosion control devices (can delineate on plan sheets)
10.	Stori	mwater and Erosion Control Calculations:
	a.	Sediment basin design (See <u>website</u> for Wake County design criteria)
	b.	Ditches, swales, and channels: Q10/V10. Tractive force (shear stress), capacity and geometry.
	c.	Dissipaters: Q10 velocities, stone size and dimensions.
	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 with [10-21-3]
	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.
	f.	Other hydraulic and hydrologic computations critical to the plan/designs
	g.	Signature, Date and Professional Seal: for all Stormwater design management proposals, i.e. calculations, BMP designs, operations/maintenance/budget/as-built/inspections/manuals.
11.	One (1) electronic copy of a complete set of construction drawings for 1 st submission, number (#) copies for final approval	
12.	Draft Stormwater Agreement, Draft Maintenance Agreement, Draft Deed Restrictions / Protective Covenants Proposal, Draft As-Built Plan or performance guarantee paperwork	
13.	Proposed Site Plan:	
	a.	Combined Erosion Control, Stormwater and Floodplain Approval Block (Cover Sheet)
	b.	Location/Vicinity Map
	c.	North arrow, graphic scale, drafting version date, legend and professional seal
	d.	Existing and proposed contours: plan and profiles for roadways
	e.	Boundaries of tract: including project limits
	f.	Table with impervious calculations - existing and proposed impervious surfaces: roads, well lots, recreation sites, single family residences, etc. (consistent with SW Hybrid Tool inputs)
	g.	Proposed improvements: roads, buildings, parking areas, grassed landscaped, and natural areas.
	h.	Lot lines, lot numbers, road names, and impervious limit on each lot rounded to nearest whole number
	i.	Utilities: community water and sewer, plan/profiles, easements and sediment controls.
	9. 10.	8. Drain Storm 9. Drain 10. Storm 10. Storm 10. C. 10. G. 11. One appr 12. Prop 13. Prop 13. Prop 10. C. 11. G. 11



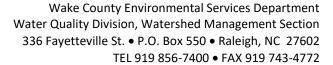
j.	Stormwater Network: inlets, culverts, swales, ditches, channels and drainage easements.
k.	TEMPORARY SEDIMENT CONTROLS: locations and dimensions of gravel entrances, diversion ditches, silt fence, sediment basins, inlet protection, etc.
I.	Sediment Basin Dewatering Bags: Provide a dewatering bag and location pad adjacent to all sediment basins for maintenance and closeout. Label the bag and pad with dimensions.
m.	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.).
n.	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.
0.	PERMANENT EROSION CONTROLS: locations and dimensions of dissipaters, ditch linings, armoring, level spreaders, retaining walls, etc.
p.	Location and requirements for stockpiles (see website for Stockpile Requirements)
q.	Wake County Construction Details
r.	Wake County Construction Sequence (Provide project specific details as needed)
s.	Wake County Stabilization Guidelines
t.	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).
u.	Show all Riparian Buffers [Article 9-21]; (Neuse: [15A NCAC 02B.0233 & 0242]
v.	Delineation of current FEMA boundaries (floodway, flood fringe & future/0.2%)
w.	Delineation of flood prone soil areas
x.	Proposed easement access lanes and sediment disposal areas for future maintenance of stormwater management facilities. Provide and label minimum 20 ft. Access easement and 10 ft. Maintenance easement from toe of stormwater pond embankment. Proposed drainage easements and widths (in Feet); Provide and label 20 ft. Drainage easement between every 4 residential lots or 4 acres of drainage area.
y.	RESIDENTIAL ONLY Asterisk lots requiring flood permits
z.	Finished floor elevations as required
aa.	A note should be added to the recorded plat distinguishing areas of disconnected impervious
ab.	Location and type of all proposed stormwater management structures (grass swale, wet/dry detention basin, filtering/infiltration basin, bioretention, etc.). Must be located in a common area of development.
ac.	RESIDENTIAL ONLY Perpetuity statement Impervious surface coverage shall not exceed impervious shown on the lot. Impervious surface limits will be strictly enforced into perpetuity.



		ad.	Q-100 backwater elevations must be shown above all culverts/BMPs draining 4 or more acres.		
Standards and Requirements					
Unle ado _l	By marking items with an "X", applicant acknowledges potential standards to be applied to the proposed development. Unless otherwise noted, all references shown in brackets are for the <u>Wake County Unified Development Ordinance (UDO)</u> , adopted 04/17/06. Wake County UDO Article 8 – Subdivision Design and Improvements				
		Stroa	ms or Drainageways [Article 8-37-2] – Easements for streams or drainageways must be provided and must		
	14.	follow the existing course of such streams or drainageways. Easements for drainage of surface waters from 4 lots or less may cross lots only if the Planning Board or Planning Director determines that such location will not pose a hazard to persons or property.			
	15.	2NC, assoc devel	lards [Article 8-43] — All subdivisions within the zoning districts R-40W, R-80W and overlay districts WSO-WSO-3CA, WSO-3NC and WSO-4P must be designed and constructed so that all development directly liated with the subdivision (e.g., roads, utilities, grading, drainage facilities) and all subsequent opment (e.g., buildings, driveways, yards, on-site utilities, grading, drainage facilities) on the subdivision's and other parcels: minimizes impervious or partially pervious surface coverage. diffuses the flow of stormwater runoff, encourages sheet flow and avoids concentrated discharge of stormwater into surface waters. incorporates Best Management Practices (BMPs) to minimize adverse water quality impacts. transports stormwater runoff from the development by vegetated conveyances; and avoids disturbance of vegetation within water supply watershed buffers.		
Wak	ce Cou	nty UD	O Article 9 - Stormwater Management Requirements		
See Wake County's Stormwater Manual: Submittal and Design Guidance					
	16.	Articl indus	nwater Review Required - All residential subdivision development must submit a plan to comply with e 9. Minor subdivisions have the option of limiting impervious to 15%. Office, institutional, commercial or trial development that disturbs greater than ½ acre is required to comply with the stormwater gement regulations of Article 9.		
	17.	perm mana const	nwater Permit – is required for all development and redevelopment unless exempt pursuant to the UDO. A it may only be issued subsequent to a properly submitted, reviewed and approved stormwater gement plan and permit application. [Article 9] Note: A permit may not be required if there are no post-ruction requirements (i.e., SCMs).		
	18.	numb	ne Management – is required for RESIDENTIAL regular subdivisions when the post development curve per exceeds the pre-development curve number using the Wake County Hybrid Stormwater Tool. Minor visions have the option of limiting impervious to 15%.		
	19.	comp	 For projects requiring stormwater treatment for quality and/or quantity control, the applicant must ly with the NC <u>Stormwater Design Manual</u>, as well as Article 9 - Part 3 Completion and Maintenance of ovements, prior to approval of the record plat. 		
	20.	24-hc	stream Impact Analysis – Required analysis using the "10% rule" drainage area evaluation of the 10-year, our peak flow of the pre/post development to determine if the project will have any impacts on flooding or neel degradation downstream of the project site in accordance with Article 9-22.		



Nutrient Management Strategies – Neuse Rules [15A NCAC 02B.0235] and Jordan Lake Rule [15A NCAC 02B.0265]; Neuse				
Rules apply County-wide [Article 9-21] See Wake County's Stormwater Manual: Submittal and Design Guidance				
Sele	ct all th			
Ш	21.	Ripa	rian Buffer Rules:	
		a.	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".	
		b.	Due to the location of this project, it should be noted that a rule to protect and maintain existing buffers along watercourses in the Jordan Lake Watershed became effective on August 11, 2009. The Jordan Lake Water Supply Watershed Buffer Rules (15A NCAC 02B .0267) applies to all perennial and intermittent streams, lakes, ponds and estuaries in the Jordan Lake Watershed with forest vegetation on the adjacent land or "riparian area".	
	22.		c Flow – new development shall not result in a net increase in peak flow leaving the site from the pre- elopment conditions for the 1 yr24 hr. storm.	
	23.	load	litrogen Load - contributed by the proposed new development activity shall not exceed the unit area mass bading rate for nitrogen of 3.6 of pounds per acre per year: nitrogen loading shall be calculated using the Wake County Hybrid Stormwater Tool.	
		a.	Replacement or Expansion w/No Net Increase in BUA – proposed development that would replace or expand structures or improvements that existed as of July 2001, and that would not result in a net increase in built-upon area shall not be required to meet Nitrogen loading targets except to the extent that the developer shall provide stormwater control at least equal to the previous development.	
		b.	Replacement or Expansion with Net Increase in BUA proposed development that would replace or expand structures or improvements and that would result in a net increase in built-upon area shall meet the target of 3.6 lbs./ac/yr. for the entire site OR achieve a 30% reduction in Nitrogen loading and no increase in Phosphorus loading.	
		c.	 LID option - Developments that show volume matching using Storm-EZ shall be considered as meeting nutrient export requirements without making offset payments provided the following: When analyzing a development site, the pre-development land cover shall be entered into Storm-EZ as "Woods" for the entire project area. The Wake Couty Hybrid Tool must be run to estimate the pre-development, and post-development, pre-BMP nutrient export rates for the site. See NCDENR Memo on Coordination between LID & NSW Programs 	
Wake County UDO Article 10 - Erosion and Sedimentation Control Requirements				
	24.	Erosion Control: This project will require an Approved Erosion and Sediment Control Plan and Land Disturbance Permit if it involves greater than one acre of disturbance [10-13-1(A)]. Note: 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.		





	25.	the <i>Desi</i> devi	20-1 Minimum Standards - All soil erosion and sedimentation control plans and measures must conform to minimum applicable standards specified in <i>North Carolina's Erosion and Sediment Control Planning and ign Manual</i> and the <i>Wake County Sedimentation and Erosion Control Plan Review Manual</i> . Erosion control ices must be installed to prevent any offsite sedimentation for any construction site regardless of the size of land disturbance.		
	26.	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.			
	77	10-2	20-10 Standards for High Quality Water (HQW) Zones		
Ш	27.	Land	d-disturbing activities to be conducted in High Quality Water Zones must be designed as follows:		
		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.		
		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.		
		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.		
		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)		
		e.	Ground Cover – Ground cover sufficient to restrain erosion must be provided for any portion of land-disturbing activity in a HQW zone within seven calendar days, following completion of any phase or grading, or when grading equipment leaves the site.		
	28.	Senate Bill 1020; "SECTION 3. (h) Additional standards for land-disturbing activities in the water supply watershed":			
		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		
		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		
		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.		
Wak	Wake County UDO Article 11 - Environmental Standard Requirements				
	29.	Water Supply Watershed Buffers (WSWB) [Article 11, Part 2] Select all that apply.			
		a.	 Water Supply Impoundments with a drainage area of 25 acres or more [Article 11-21-2]: WSWB required with a minimum width of 100 feet around all water supply impoundments Buildings must be setback at least 20 feet from the outer boundary of the required buffer area. 		



			Water Supply Impoundments with a drainage area of 5 to 25 Acres [Article 11-21-3]:
		b.	WSWB required with a minimum width of 30 feet provided around all water impoundments
			Buildings must be setback at least 20 feet from the outer boundary of the required buffer area.
			Non-Water Supply Impoundments with a drainage area of 25 Acres or more [Article 11-21-4]:
	Ш	c.	WSWB required with minimum width of 50 feet around all non-water supply impoundments.
			Buildings must be setback at least 20 feet from the outer boundary of the required buffer area.
			Perennial Streams [Article 11-21-5]:
			WSWB required with a minimum width of 100 feet along each side of a stream shown as a perennial
			stream on the most recent edition of U.S.G.S. 1:24,000 (7.5 minute) scale topographic maps.
	П	d.	The area of the required buffer that begins at the stream bank and extends landward 50 feet is
		-	subject to the Zone 1 standards of Sec. Section 11-22-1(A).
			The area of the required buffer that begins at the outer edge of Zone 1 and extends landward 50 feet
			is subject to the Zone 2 standards of Sec. Section 11-22-1(B).
			No minimum building setback from the required buffer.
			Non-Perennial Watercourses [Article 11-21-6]
	П	e.	WSWB required with a minimum width of 50 feet along each side of non-perennial watercourses,
			channels, ditches or similar physiographic features with a drainage area of 25 acres or more
			Buildings must be setback at least 20 feet from the outer boundary of the required buffer area.
			Watercourses and Channels, 5 to 25 Acres [Article 11-21-7]
		f.	WSWB required with a minimum width of 30 feet along each side of a watercourse, channel, ditch, or
			similar physiographic feature with a drainage area of at least 5 acres, but less than 25 acres
			Buildings must be setback at least 20 feet from the outer boundary of the required buffer area. Set to the set
			Activities Allowed within Buffers [Article 11-22-2(F)]: Driveway crossings that access single-family
			dwellings, provided:
			 no alternative to their location in the buffer (including opportunity for shared driveways) exists. buffer disturbance is no more than 60 feet wide.
		_	
	Ш	g.	buffer disturbance is no more than 6,000 SF in area. the driveway grosses the buffer at an angle class to 00 degrees and not less than 60 degrees.
			• the driveway crosses the buffer at an angle close to 90 degrees and not less than 60 degrees.
			 side slopes do not exceed a 2:1 (horizontal to vertical) ratio (bridging and/or retaining walls may be used to meet this and the disturbance width standard); and
			,,
			 all culverts are designed and constructed for the 25-year storm event. Activities Allowed within Buffers [Article 11-22-2(K)]: Road crossings (public or private roads), provided:
			no alternative location in the buffer exists.
			 buffer disturbance does not extend beyond the required right-of-way or easement width, or in no case is more than 90 feet wide.
		h.	buffer disturbance is no more than 9,000 SF in area.
		11.	 the road crosses the buffer at an angle close to 90 degrees and not less than 60 degrees.
			 side slopes do not exceed a 2:1 horizontal: vertical ratio (bridging and/or retaining walls may be used
			to meet this and the disturbance width standard); and
			all culverts are designed and constructed for the 25-year storm.
			cial Watershed Areas – Swift Creek Water Supply Watershed Development in the Swift Creek Water Supply
	30.		ershed is subject to the requirements of the <u>Swift Creek Land Management Plan</u> in addition to other
		appl	icable standards.
_	·	_	



		a.	An as-built plan prepared by a licensed professional land surveyor is required for all lots before a Certificate of Occupancy may be issued. [11-30-3]		
		b.	In addition to the standards of the underlying zoning district, additional standards apply to all land within the Swift Creek Water Supply Watershed. (See [11-30-4])		
	31.	Spec	Special Watershed Areas - Little River Water Supply Watershed		
		a.	An as-built plan prepared by a licensed professional land surveyor is required for all lots before a Certificate of Occupancy may be issued. [11-31-1]		
		b.	The following maximum impervious surface ratios apply to all nonresidential development in the Little River Water Supply Watershed: R-80W = 6% of lot/site R-40W = 12% of lot/site		
	32.	Spec	Special Watershed Areas - Smith Creek Water Supply Watershed		
		a.	All residential and commercial properties require a preliminary site plan prepared by a licensed professional land surveyor, landscape architect, architect, or engineer. [11-32-1]		
		b.	All residential and commercial properties require a preliminary site plan prepared by a licensed professional land surveyor, landscape architect, architect, or engineer. [11-32-1]		
		c.	The following maximum impervious surface ratios apply to all nonresidential development in the Smith Creek Water Supply Watershed: R-80W = 6% of lot/site R-40W = 12% of lot/site		
Wake County UDO Article 14 - Flood Hazard Area Requirements					
	33.	Flood Study Required [Article 14] A study of the potential changes in the base flood elevation caused by the obstruction (fill), encroachment, alteration or relocation (including driveway or road crossings) of the following areas:			
		a.	a FEMA mapped floodway (Note: No new structures may be constructed or placed within a floodway or non-encroachment area except as otherwise provided by subsection 14-19-2; AND No fill may be placed in a floodway or non-encroachment area except as otherwise provided by subsection 14-19-2; [Article 14-19-3(A-B)])		
		b.	a non-encroachment area [Article 14-19-3(A-B)], see note above		
		c.	a FEMA mapped area of special flood hazard that has not previously been studied in detail		
		d.	flood hazard soils areas with a total drainage area of more than 5 acres but no more than 25 acres [Article 14-15-3] or -		
		e.	flood hazard soils areas with a total drainage area of more than 25 acres, but less than 100 acres [Article 14-15-4] or -		



Wake County Environmental Services Department
Water Quality Division, Watershed Management Section
336 Fayetteville St. ◆ P.O. Box 550 ◆ Raleigh, NC 27602
TEL 919 856-7400 ◆ FAX 919 743-4772

		f.	flood hazard soils area with a total drainage area of 100 acres or more [Article 14-15-5]	
	34.	Impoundments and Dams [14-23]		
		a.	Any construction, repair, alteration, or removal of a jurisdictional dam shall obtain State Agency Approval in accordance with Article 21, Chapter 143 of the North Carolina General Statutes. [Article 14-23-1]	
		b.	If an impoundment is proposed to be constructed or retained within any proposed subdivision, the following standards shall apply. These County standards are separate from and do not supersede any State Agency requirements. • The impoundment and its dam shall be constructed or structurally upgraded to accommodate the runoff from a 24-hour, 100-year frequency storm.	
			 Runoff computations must use SCS methods or other acceptable engineering standards. [Article 14-23-2] 	
Applicant Signature: Date:				