



Date: \_\_\_\_\_

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PROJECT INFORMATION

Project Name: \_\_\_\_\_
Phase: \_\_\_\_\_ Planning Case Number: \_\_\_\_\_
Previous Project Name(s): \_\_\_\_\_
PIN(s): \_\_\_\_\_
Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_
Company: \_\_\_\_\_ Fax: \_\_\_\_\_
Email Address: \_\_\_\_\_

INSTRUCTIONS

For each review submittal, including re-submittals, the entire Stormwater Impact Analysis (SIA) and submittal checklist shall be submitted. Partial SIA and checklist will result in notification of an incomplete submittal with no review performed.

Contact Stormwater Services regarding redevelopment or expansion projects for modified requirements.

The following checklist outlines submittal requirements. Initial in the space provided to indicate the following submittal requirements have been met and supporting documentation is attached.

A. GENERAL REQUIREMENTS

Initials

- (Check One) \_\_\_ INSIDE \_\_\_ OUTSIDE Watershed Protection Overlay (WPO).
Indicate the WPO(s) where the project is located:
(Check all that apply) \_\_\_ F/J-A \_\_\_ F/J-B \_\_\_ E-A \_\_\_ E-B \_\_\_ M/LR-A \_\_\_ M/LR-B
If inside WPO, notation of WPO Standards is required on plans.
(Check all that apply) \_\_\_ Jordan Basin \_\_\_ Falls Basin \_\_\_ Lower Neuse Basin
A legible copy of the United States Geological Survey 7.5 Minute Quadrangle map is provided, including map reference, with site boundary clearly shown and labeled. The map clearly shows all streams.
A legible copy of the published Durham County Soil Survey is provided, including map reference, with the site boundary clearly shown and labeled. The map clearly shows all streams, soil types and soil type boundaries.
Tops of banks for the streams are shown on the plan. [Contact the North Carolina Department of Environment and Natural Resources for stream identifications in the Neuse River Basin (Falls and Lower Neuse Basins). Stream determinations in the Jordan Basin shall be submitted per the Letter to Industry found on Stormwater Development Reviews' web site at New Stream Buffer Requirements [First Revision to LTI 07-03-08] (25August2011)].
All Watershed Protection Overlay, Neuse River Basin, Jordan Basin, and City riparian buffers, measured from the tops of the stream banks, are shown on the plan.

- \_\_\_\_\_ The 10-foot no build setback, measured from all riparian buffers, is shown on the plan.
- \_\_\_\_\_ Diffuse flow is achieved into riparian buffers.
- \_\_\_\_\_ (Check One)  Yes  No Regulated floodplain located on site.
- \_\_\_\_\_ A legible copy of the effective Federal Emergency Management Agency National Flood Insurance Program Flood Insurance Rate Map is provided. Map number, map date, and site boundary are clearly shown and labeled. [This map is required regardless of whether floodplain is located on the site.] The effective and/or future FEMA 100-year floodplain, with base flood elevations (if applicable), are shown on the plan.
- \_\_\_\_\_ All applicable notes, per the Standard Notes section of the *Reference Guide for Development*, have been added to the plan.
- \_\_\_\_\_ Stormwater Impact Analysis (SIA) sealed and signed by a registered North Carolina Professional Engineer (NCPE) is provided, including narrative report and drainage calculations. Note: If a site is exempt from stormwater requirements then a narrative advising of the exemption can be submitted by any designer.

## B. PEAK DISCHARGE RATE EVALUATION

### Initials

- \_\_\_\_\_ An introductory narrative describing pre- and post-development site conditions and site improvement changes, is provided. Note: The baseline conditions for the 1-year event varies based upon the regulatory basin in which the project is located.
- \_\_\_\_\_ Drainage area maps (one map for pre-development and one map for post-development) are provided with the following items:
  - \_\_\_\_\_ Scale and north arrow (Note: Except in the instance of site-to-drainage area maps, the scale of each drainage area map shall not exceed 1" = 30').
  - \_\_\_\_\_ Sub-basin area(s) delineated with area(s) in acres indicated.
  - \_\_\_\_\_ Analysis points clearly identified and labeled.
  - \_\_\_\_\_ Segmented TR-55 time of concentration flow paths showing and labeling each segment.
- \_\_\_\_\_ Methodologies and procedures are fully described.
- \_\_\_\_\_ A site plan with contour lines or grading plan identifying pre- and post-development drainage patterns is provided.
- \_\_\_\_\_ Pre- and post-development times of concentration, calculated by TR-55 segmented approach, are provided.
- \_\_\_\_\_ Calculations for the pre- and post-development peak discharge rates are provided for the 1-, 2-, 10-, and 100-year, 24-hour storm using TR-55, TR-20, HEC-HMS, HEC-1 or Rational Method as applicable. Note: The Rational Method is not accepted for the 1-year analysis, areas that drain more than 50 acres, or watersheds that are not homogeneous.

\_\_\_\_\_ A Summary of Results is provided in the following format:

**Site Analysis Point # \_\_\_\_\_**

Site Condition	Storm Event (cfs)				
	1-year (cfs)	2-year (cfs)	10-year (cfs)	100-year (cfs)	____-year (cfs)
Pre-Development					
Post-Development without Detention					
Post-Development with Detention					

\_\_\_\_\_ Conclusions providing detailed findings are provided.

\_\_\_\_\_ Stormwater control measure(s) (SCM[s]) are provided (indicate number of each type of SCM):

- \_\_\_\_ Level Spreader w/ Vegetative Filter Strip    \_\_\_\_ Stormwater Wetland  
 \_\_\_\_ Wet Detention Basin    \_\_\_\_ Sand Filter    \_\_\_\_ Bioretention    \_\_\_\_ Grassed Swale  
 \_\_\_\_ Restored Riparian Buffer    \_\_\_\_ Dry Extended Detention Basin  
 \_\_\_\_ Permeable Pavement    \_\_\_\_ Green Roof    \_\_\_\_ Disconnected Impervious Surface  
 \_\_\_\_ Rainwater Harvesting System  
 \_\_\_\_ Proprietary Systems or Other \_\_\_\_\_  
 \_\_\_\_ Not required (provide explanation): \_\_\_\_\_

\_\_\_\_\_ The SCM(s) indicated above are required to control the following peak discharge rates:

- \_\_\_\_ 1-year    \_\_\_\_ 2-year    \_\_\_\_ 10-year    \_\_\_\_ 100-year    \_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ A downstream analysis in accordance with the *Reference Guide for Development* is provided with findings, or is

- \_\_\_\_ Not required (provide explanation): \_\_\_\_\_

**C. POLLUTANT CONTROL REQUIREMENTS**

**Initials**

\_\_\_\_\_ The project is exempt based upon cumulative land disturbance as of the applicable baseline date.

\_\_\_\_\_ The proposed project is \_\_\_\_  $\geq 16\%$  impervious (Falls and Jordan Basins) / \_\_\_\_  $\geq 24\%$  impervious (Lower Neuse Basin), 85% Total Suspended Solids (TSS) removal is provided for this project, and all the impervious area as reasonably practical is treated by an SCM.

OR

The proposed project is \_\_\_\_  $<16\%$  impervious (Falls and Jordan Basins) / \_\_\_\_  $<24\%$  impervious (Lower Neuse Basin), 85% Total Suspended Solids (TSS) removal for all runoff from non-vegetated conveyances is provided for this project, and all the impervious area as reasonably practical is treated by an SCM.

\_\_\_\_\_ The project is low density without non-vegetated conveyances, thus TSS removal is not required.

\_\_\_\_\_ SCMs for TSS removal are provided (indicate number of each type of SCM): Note: Not all of the SCMs listed below provide 85% TSS removal as a stand-alone SCM and must be used in series with other SCMs to achieve the minimum TSS removal of 85%.

- Level Spreader w/ Vegetative Filter Strip     Stormwater Wetland  
 Wet Detention Basin     Sand Filter     Bioretention     Grassed Swale  
 Restored Riparian Buffer     Dry Extended Detention Basin  
 Permeable Pavement     Green Roof     Disconnected Impervious Surface  
 Rainwater Harvesting System  
 Proprietary Systems or Other \_\_\_\_\_  
 Not required (provide explanation):

\_\_\_\_\_ Hard copies of the following:

- Pre- and post-development nutrient calculations using the Jordan/Falls Lake Stormwater Nutrient Load Accounting Tool found at: <http://portal.ncdenr.org/web/jordanlake/implementation-guidance-archive> or <http://durhamnc.gov/ich/op/pwd/storm/Pages/SWDevReview.aspx>

Note: Nutrient calculations are always required regardless if the project is exempt from treatment requirements.

- The Nutrient Reporting Form (including the Compliance Worksheet tab) per the 3/7/2013 Letter to Industry <http://durhamnc.gov/ich/op/pwd/storm/Pages/LTI-SWDevReview.aspx>

\_\_\_\_\_ Pre- and post-development land use area maps that correspond to the categories used in the Jordan/Falls Lake Stormwater Nutrient Load Accounting Tool for the nutrient calculations, to scale no smaller than 1 inch = 100 feet. The maps shall show the map scale, north arrow, and are to have the different land uses either hatched or shaded with areas indicated in a legend on the maps. Note: The land use area maps are always required regardless if the project is exempt from treatment requirements.

- \_\_\_\_\_ SCMs for nutrient control are provided (indicate number of each type of SCM):
- \_\_\_\_\_ Level Spreader w/ Vegetative Filter Strip    \_\_\_\_\_ Stormwater Wetland
  - \_\_\_\_\_ Wet Detention Basin    \_\_\_\_\_ Sand Filter    \_\_\_\_\_ Bioretention    \_\_\_\_\_ Grassed Swale
  - \_\_\_\_\_ Restored Riparian Buffer    \_\_\_\_\_ Dry Extended Detention Basin
  - \_\_\_\_\_ Permeable Pavement    \_\_\_\_\_ Green Roof    \_\_\_\_\_ Disconnected Impervious Surface
  - \_\_\_\_\_ Rainwater Harvesting System
  - \_\_\_\_\_ Proprietary Systems or Other \_\_\_\_\_
  - \_\_\_\_\_ Not required (provide explanation):

\_\_\_\_\_ After meeting the minimum on-site treatment requirements, additional treatment and/or offsite credit purchases, if needed, is provided by:

- \_\_\_\_\_ Additional SCMs
- \_\_\_\_\_ Nutrient Offset Payment to the North Carolina Ecosystem Enhancement Program
- \_\_\_\_\_ Nutrient Offset Payment to an Approved Nutrient Bank
- \_\_\_\_\_ Land Bank Credit Transfer (Commitments shall be made prior to October 1, 2015)

\_\_\_\_\_ The project site is located in an area subject to a state-approved Total Maximum Daily Load (TMDL) for bacteria. (As of April 2014, only Northeast Creek has a TMDL for bacteria).

\_\_\_\_\_ SCMs rated as medium or high for bacterial removal are provided (indicate number of each type of SCM):

- \_\_\_\_\_ Bioretention Area    \_\_\_\_\_ Stormwater Wetlands
- \_\_\_\_\_ Wet Detention Basin    \_\_\_\_\_ Sand Filter
- \_\_\_\_\_ Level Spreader w/ Vegetative Filter Strip    \_\_\_\_\_ Restored Riparian Buffer
- \_\_\_\_\_ Dry Extended Detention Basin    \_\_\_\_\_ Permeable Pavement
- \_\_\_\_\_ Other (specify) \_\_\_\_\_
- \_\_\_\_\_ Not required (provide explanation):

D. WATERSHED PROTECTION OVERLAY REQUIREMENTS

Initials

85% Total Suspended Solids (TSS) removal is required for this project, and 100% of the impervious area will be treated by an SCM. Note: Not all of the SCMs listed below provide 85% TSS removal as a stand-alone SCM and must be used in series with other SCMs to achieve the minimum TSS removal of 85%.

SCM for TSS removal are provided (indicate number of each type of SCM):

- Level Spreader w/ Vegetative Filter Strip
- Stormwater Wetland
- Wet Detention Basin
- Sand Filter
- Bioretention
- Grassed Swale
- Restored Riparian Buffer
- Dry Extended Detention Basin
- Permeable Pavement
- Rooftop Runoff Management
- Disconnected Impervious Surface
- Rainwater Harvesting System
- Proprietary Systems or Other \_\_\_\_\_
- Not required (provide explanation):

E. ELECTRONIC FILE SUBMITTAL

Initials

A compact disc (CD), DVD rom disk, or USB drive, separate from that submitted to fulfill the Planning Department's electronic file submittal requirements, and marked "For Stormwater Services" has been included with the submittal. An electronic file transfer protocol or other internet cloud-based file sharing website can be used in place of the electronic media. The disc or USB drive contains electronic copies of the following:

- Sealed SIA:** entire document including narrative, data, calculations, pre- and post-development drainage area maps, pre- and post-development land use area maps that correspond to the categories used in the JFLSAT, and all appendices (pdf format)
- Jordan/Falls Lake Stormwater Accounting Tool (Excel format)
- Nutrient Reporting Form (Excel format)