
Procedure for Meeting the Requirements of the Nutrient Sensitive Waters Stormwater Programs by Implementing Low Impact Development

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From this point forward, DEMLR and DWR will allow persons who design new developments using Storm-EZ, and show **volume matching**, within the Neuse, Tar-Pamlico, Jordan Lake and Falls Lake watersheds to be considered as meeting nutrient export requirements without making offset payments. However, there will be two additional requirements for those who are designing LIDs to meet NSW stormwater requirements:

- When analyzing a development site, the pre-development land cover shall be entered into Storm-EZ as "Woods" for the entire project area. This modification is necessary to ensure that nutrient reduction goals are met.
- The appropriate methodology for the NSW basin must be run to estimate the pre-development, and post-development, pre-BMP nutrient export rates for the site. This is required for record-keeping purposes. The post-development, post-BMP nutrient export rates shall be assumed to match the loading rate goal for the basin in which the development is taking place, again for record-keeping purposes.

DEMLR and DWQ will continue to evaluate the use of **volume matching** with Storm-EZ and its effectiveness in controlling nutrients and incorporate any needed adjustments in the future.

If you have questions about the coordination between the two programs, please do not hesitate to contact Annette Lucas at (919) 807-6381 or annette.lucas@ncdenr.gov.

BACKGROUND

Currently, persons initiating a new development or redevelopment within an area that is subject to NSW Stormwater Programs are required to follow the prescribed methodology for computing the nutrient export associated with their development activity. The nutrient accounting tools used in each of the basins with NSW Stormwater Programs are:

- **Neuse:** Designers use the calculation guidance in the Neuse Model Stormwater Plan or other state-approved local government accounting method, see pages 10 through 12: http://portal.ncdenr.org/c/document_library/get_file?uuid=aec36619-bb4f-417e-89bc-02c260f37742&groupId=38364
- **Tar-Pamlico:** Designers use the Piedmont and Coastal Plain Export Calculation Worksheets, see <http://www.ncwaterquality.org/web/wq/ps/nps/tarpamstorm> (links at bottom of page).
- **Jordan and Falls Lake:** Designers use the Jordan Falls Nutrient Site Assessment Tool (JFSAT), see <http://portal.ncdenr.org/web/jordanlake/implementation-guidance-archive>.

On April 1, 2014, DEMLR public noticed its new **Storm-EZ** Permitting Tool. Storm-EZ is a spreadsheet-based tool with computations based on the SCS Discrete Curve Number Method and current research findings on hydraulic and hydrologic performance of BMPs. Designers enter pre-development and post-development land use data and design data for stormwater practices. Then, Storm-EZ reports whether the project meets stormwater regulations for basic compliance with the state stormwater program. Storm-EZ also reports whether or not a site meets hydrologic **volume matching** requirements sufficiently to be considered Low Impact Development (LID).

The nutrient accounting tools and Storm-EZ both require similar inputs regarding pre- and post-development site conditions and stormwater BMPs. DWR and DEMLR have run a range of site designs that meet LID volume matching requirements through the JFSAT and have found that, using a pre-development assumption of full wooded condition, these sites sufficiently control and remove nutrients on site to be considered as meeting the nutrient export limits set forth in the NSW stormwater rules. Specific findings are:

- For single-family residential development in any watershed, any LID design effectively meets or exceeds JFSAT-estimated rate targets outright;
- For more intensive development types, LID designs effectively meet or exceed rate targets in all watersheds except Falls and Jordan-UNH.
- Other factors weighing in favor of the overall sufficiency of LID designs for compliance with Falls and Jordan-UNH (as well as in other watersheds) include:
 - In providing virtually full rule compliance onsite, we believe that LID's comparatively great onsite hydrologic benefits afford better stream protection than riparian buffer restoration projects used to satisfy offsite requirements, as well as more certainty to estimated nutrient load reductions.
 - Other LID site design factors that are not captured by the current nutrient tool also weigh in favor of loading rates of LID designs meeting rate targets.