

## **Storm Water Management Plan Review Checklist**

Detailed storm water plans, specifications, and maps are required including construction drawings of all BMP(s) and storm water systems. When preparing a plan and specifications submittal for new development, the following information will be required:

- Completed application form.
- Site Plan containing the following:
  - A vicinity map
  - All pipe sizes and drainage locations
  - All existing and proposed drainage easements
  - The location and description of all flood restriction lines and elevations
  - The location of riparian buffers
  - Zoning and current development of all land upstream which could directly or indirectly impact the proposed water system, and all land downstream which could be directly impacted by the proposed storm water system
  - The location of regulated Wetland delineations
  - The location of existing and proposed structural BMP(s)
- Nitrogen loading calculations with appropriate BMP(s) and offset payment.
- Storm water facilities easements maps and legal instruments, as required.
- Check made payable to Town of Smithfield for the storm water review fee.
- Documentation of the determination of appropriate BMP(s) and offset fees.
- A schedule for implementation of all proposed water quality BMP(s) that specifies when the BMP(s) will be on-line with respect to the development schedule for the drainage area serviced by the BMP.
- Certification by a North Carolina registered professional engineer who is qualified in hydrology and hydraulics, stating that the plans comply with the standards of the Town of Smithfield as per section 20.
- Completed Inspection and Maintenance Form. Must be recorded in the Register of Deeds Office.
- Maximum impervious area with verification of maximum imperviousness (restrictive covenant or note on final recordable plat for subdivisions; impervious area calculations and note on recordable plat).

- Hydrologic and hydraulic analyses and design computation, as appropriate (BMP design, drainage calculation, etc.) including the following:
  - Flood and storage routings are required for embankment type BMP(s). A design table with each drainage structure numbered including size, material, environmental and cumulative drainage areas, peak flows, and headwater where applicable, zoning, “C” or “CN” values, slope, imperiousness, and other pertinent data used to calculate the runoff from the area tributary to each structure.
  - Downstream analysis: An analysis of the storm water impacts of proposed development or construction activity including: the effects on existing upstream and downstream drainage systems and property; the ability of the natural drainage way(s) to handle additional storm water runoff; and site specific criteria. Hydraulic and hydrologic analyses of upstream and downstream structures shall be provided to ensure that the structure (s) will not be negatively impacted by the development; that this development shall not cause erosion downstream; that the development shall not create flood hazard upstream by excessively ponding water. In the event that such negative impacts are expected, measures shall be taken prior to development to offset the impacts (replacing or improving conveyance pipes or structures, obtaining downstream or upstream offsite drainage easements, etc.). The analyses shall be extended upstream and downstream to points where impact is insignificant. Insignificant impact is assumed when the drainage area to the analysis point is less than 10% of the total drainage area.
  - As-Built Plans

Upon completion of the new construction the developer is required to provide “as-built” plans, certified by a NC registered professional engineer, prior to receiving an occupancy permit for the property. These plans are also to be certified using the language provided in the Section below:

#### Certification

The storm water quality management program of the Town of Smithfield is a performance-based program. In order to achieve the performance that the BMP(s) are intended to provide, proper design, construction, operation, and maintenance of storm water management facilities and BMP(s) are essential.

The certification must be provided by a North Carolina registered professional engineer qualified in hydrology and hydraulics. The certification to be provided with engineering of storm water control plans is provided below and should be stamped or sealed, signed and dated with the submittal.

“ I certify that this plan complies with the ordinances, rules, regulations, and storm water drainage design standards of the Town of Smithfield.”

Certification must also be provided by a North Carolina registered professional engineer, qualified in hydrology and hydraulics for the “as-built” plans. The certification to be made is provided below and should be stamped or sealed, signed and dated with submittal.

“I certify that the storm water management facilities are constructed and installed in conformance with the ordinance, rules, regulations, drainage design standards of the Town of Smithfield, and the approved storm water management plan.”

### Annual Inspections

Inspections of the BMP(s) and other storm water controls are to be made annually to ensure that routine and remedial maintenance are being performed and that the BMP(s) are operating properly. The annual certification that appropriate maintenance is being performed is to be made by a North Carolina registered professional engineer, registered landscape architect, or registered land surveyor. The following certification is to be made with accompanying stamp or seal, signature and date.

“I certify that the BMP(s), storm water management facilities, and open space areas referenced in this document have been maintained in conformance with the approved storm water management plan and maintenance agreement. This certification is made based on personal observation of the site and review of maintenance records.”

### Regional Storm Water Management Plans (SWMPs)

The most efficient and cost effective means of managing both the quantity and quality of storm water runoff is through the use of regional SWMP plans. Regional SWMP plans may include a system of BMP(s) in series of parallel designed to treat the runoff from a large site or network of contiguous sites, or a single BMP designed to treat the runoff from a site of new development. When a site is part of an approved regional SWMP there will be no requirement for on-site structural controls unless they are part of the regional plan. Non-structural controls required by the Town as part of its storm water management program are not exempted by regional SWMP plans.

In some instances it will be necessary to provide the BMP(s) prior to complete development of the drainage area when a multi-phased development is planned.

In these instances any regional BMP(s) may have to be implemented as part of the initial development of the site. This can be accomplished by the developer(s)

and/or the Town front-ending the cost of a regional BMP(s) and recovering the incremental cost as development continues through a latecomer, or impact fee, assessed as each additional property in the drainage area is developed.

In cases where the public's best interest is served by the public construction of regional BMP(s) or BMP systems, a predetermined schedule of fees will be determined at the time of construction of the BMP. The BMP(s) will be sized to control the quantity and quality of runoff from the upstream drainage areas under future conditions. Future development in the drainage area will pay a fee-in-lieu-of providing on-site storm water management.

For many regional SWMP(s) there is a high likelihood that both existing and new development will be present in the drainage area. In these instances BMP(s) will need to be sized appropriately to treat ALL runoff from the drainage area. In these instances property owners may be able to obtain partial offsetting credit against the need to provide water quality treatment for areas of a contiguous development that do not fall within the drainage area of the regional BMP when the runoff from existing development is being treated by the regional BMP. This credit will be discretionary on the part of the Town and will require documentation of the respective total nitrogen removal provided by the BMP from new development and existing development, as well as the export calculations for the new development, as well as the export calculations for the new development scheduled to occur outside the drainage area of the regional BMP.

#### BMP(s) In Perpetuity

For all plans approved by the Town of Smithfield, BMP(s) that are approved in site development plans are to be maintained in perpetuity as part of the development. The BMP(s) are to be included on final recorded plats with the note, "Required BMP – MAY NOT BE REMOVED OR ALTERED," on the plat beside the BMP.

The only instances where BMP(s) will be allowed to be altered or removed will be in conjunction with the redevelopment of the property or when an approved regional BMP is constructed that was designed with control of the runoff from the property included in the design.

#### Appeals

Appeals related to design requirements in this manual or as to the interpretations of the Town relative to the manual will be as follows. A technical review committee may be established to evaluate the merits of all appeals and to advise to Town Council.