

# TOWN OF SUMMERFIELD



Local Stormwater Program for New Development

JORDAN NEW DEVELOPMENT STORMWATER RULE  
15A NCAC 2B.0265

for Submittal to NCDENR  
by September 10, 2011

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## INTRODUCTION

The Town of Summerfield is located in northwest Guilford County, North Carolina. Incorporated in 1996, it has a current area of 25 square miles and a population of 7,906 (2008). The Town is immediately North of the City of Greensboro (Appendix B, Map 1).

The Town is within the Haw River sub-basin of the Cape Fear River Basin (Appendix B, Map 2), and is divided into three additional local sub-basins: Reedy Fork, Mears Fork, and the Haw River. The Reedy Fork (approximately 50% of the Town) is part of the Greensboro Water Supply Watershed (Water Supply Watershed III). This sub-basin is further divided into a General Watershed Area and a Watershed Critical Area. A Watershed Protection Ordinance has been in effect since 1992 (originally adopted by Guilford County, now under Town jurisdiction). The Mears Fork and Haw River sub-basins have not been under watershed protection ordinances until the adoption of the Jordan Lake Nutrient Management Strategy by the State in August 2009 and the Jordan Lake Buffer Ordinance adopted September, 2010. The Town of Summerfield is deemed compliant under Session Law 2006-246 for Non-Phase II Municipalities.

The entire Town uses on-site wastewater treatment and private or community wells for domestic water supply. Summerfield is exempt from the *Phase II National Pollution Discharge Elimination System* (NPDES) permitting requirements due to size of population and absence of a municipal owned MS4 and concentrated flow of storm water from public streets and properties.

### Jordan Lake

The B. Everett Jordan Reservoir is a multi-use impoundment operated by the US Army Corps of Engineers formed by the construction of a dam on the Haw River east of Pittsboro in Chatham County, NC. The lake is operated for flood control, water quality, fish and wildlife conservation, recreation, and water supply. There are two arms of the Reservoir—the Haw River and the New Hope Creek. The watershed encompasses 1,686 square miles and includes parts of Alamance, Caswell, Chatham, Durham, Forsyth, Guilford, Orange, Randolph, Rockingham, and Wake counties. The reservoir is considered to be a *nutrient sensitive watershed*, causing algae blooms, and taste and odor problems in drinking water.

*The Jordan Lake Nutrient Management Strategy* (“Jordan Lake Rules”) aims to restore and maintain the water quality, protect the lake’s classified uses, and maintain or enhance protections currently implemented by local governments in existing water supply watersheds. The *Total Maximum Daily Load* for nutrients was established to provide specific limits to the amount of nitrogen and phosphorus entering the lake to control the algae blooms and associated problems. This is being done through a series of rules and regulations aimed at New Development, Existing Development, Agricultural Activities, Fertilizer Management, Riparian Buffers, and Wastewater Discharge activities.

The *Local Stormwater Program for New Development* is one of a comprehensive set of thirteen rules known as the Jordan Nutrient Strategy. This Strategy is generally designed to reduce excess nutrient

impacts, specifically nitrogen and phosphorus, into Jordan Lake to reduce algal growth and other nutrient related water quality problems.

## **1. Proposed adoption timeline and Effective Date.**

- August 11, 2009: Effective date of the Rule
- March 10, 2011: Division takes Model Stormwater program to the Commission for approval
- March 10, 2011: Town of Summerfield begins informing non-DOT state/federal entities who apply for local stormwater permits that they are subject to permitting by the Division under Rule 2B .0271. See Section 2-A-5 for further information.
- July 25, 2011: Zoning Board to consider proposed Model Stormwater Program.
- August 9, 2011: Town Council to consider proposed Model Stormwater program and vote to submit to DWQ.
- September 2011: Deadline for submittal of local Stormwater Programs to the Division.
- May 2012: DWQ to bring recommendations on local programs to the Commission.
- August 2012: Implementation of local programs. This may include, by local determination, permitting of non-DOT state/federal entities. See Section 2-A-5 for further discussion.
- August 2013 and annually: Local governments submit annual progress reports to the Commission. This date coincides with the due date for Jordan Stage 1 Existing Development annual reports.

The Local Stormwater Program for New Development is scheduled for adoption by Town Council August 9, 2011 at the regular August meeting. The effective date will be September 1, 2011.

## **2. Other Stormwater programs**

The Town of Summerfield operates a stormwater program that monitors stormwater devices Town-wide on an annual basis. These stormwater devices are checked yearly for compliance with planned development and to insure that these devices are serving their intended purposes.

Approximately one-half of the Town of Summerfield lies within range of the Greensboro water supply watershed, and applies regulations accordingly. The entire Town lies within the Jordan Lake watershed.

Summerfield is not a designated Phase II NPDES community. The Town of Summerfield is deemed compliant under Session Law 2006-246 for Non-Phase II Municipalities.

### **3. Statement of Riparian Buffer Ordinance Compliance**

The Town of Summerfield adopted the Jordan Lake Buffer Ordinance based on a State Model in October of 2010. The buffer ordinance was found by the North Carolina Department of Environment and Natural Resources (DNER) to comply with all State requirements.

The Town of Summerfield affirms our program and will carry out the review process spelled out in item (15)(e) of the buffer rule. This process is described in the Town of Summerfield Development Ordinance under Article 7, Environmental Regulations, Section 7-6.9, Permits Procedures, Requirements, and approvals, beginning on page 7-50.

### **4. State and Federal Entities Implementation**

The Jordan State and Federal Rule [Rule15A NCAC 02B .0271] establishes stormwater requirements to be implemented by the Division of Water Quality for new development on state and federal lands beginning upon Commission approval of the Jordan/Falls Accounting Tool, scheduled for March 10, 2011. The Town of Summerfield interprets Session Law 2006-246 as requiring the town to apply the requirements of this rule to state and federal projects that do not have an NPDES stormwater permit.

The Town of Summerfield intends to permit state and federal projects relative to the requirements of this rule. Until the town's program is approved and implemented, the Division of Water Quality will implement the requirements of 15A NCAC 02B .0271 on state and federal projects in the watershed.

### **5. Area of Applicability**

The Jordan new Development Stormwater Rule will apply all the property located within the Town limits of the Town of Summerfield

### **6. Minimum Qualifications of Stormwater Administrator**

The Town of Summerfield shall establish the minimum qualifications of the Stormwater Administrator (Town Manager or designee) who will be responsible for implementing the local stormwater program for new development as required by the Jordan New Development Stormwater Rule (15A NCAC 2B.0265). The Stormwater Administrator preferably shall also be responsible for stormwater plan review and Best Management (BMP) inspection. The Stormwater Administrator shall be a currently licensed North Carolina professional engineer with stormwater experience. At a minimum the qualifications shall be for persons performing services only in their area of competence, including professional engineer, registered North Carolina professional surveyor, landscape architect, soil scientist, aquatic biologist, or a person certified by the North Carolina cooperative Extension Service, to approve stormwater management plans and to inspect BMPs.

The Stormwater Administrator shall be either an employee of the Town of Summerfield or a consultant acting on the behalf of the Town of Summerfield

## **7. Maintenance/Inspection Program**

Where BMPs are implemented to achieve compliance with the water supply watershed regulations, the nitrogen and phosphorus loading, and flow attenuation requirements for a development, then the Town of Summerfield is responsible for ensuring that BMPs continue to function for the life of the development. The Town of Summerfield believes that an annual inspection of a BMP by qualified town staff is needed to ensure ongoing performance.

Maintenance of runoff control structures shall be performed at such time as the designated sediment storage volume of the structure has been lost to sediment or a part of the installation is not functioning as originally designed. The Summerfield Planning Department shall have the responsibility to inspect runoff control structures annually, to record the results on forms approved or supplied by the N. C. Division of Water Quality, and to notify the responsible property owner or owner's association when maintenance or repairs are required. All required repairs and maintenance shall be performed within ninety (90) days after such notice. In case of failure by the responsible party to perform the required maintenance or repairs within the stated period, the jurisdiction may perform such maintenance or repairs and recover all costs attendant thereto from the property owner or owner's association.

The Town of Summerfield will maintain a database of BMPs installed to comply with the requirements of the Ordinance, to track activities associated with those BMPs, and to provide the Division of Water Quality access to this information upon request. When runoff control structures serve more than one lot, an owner's association or binding contract for the purpose of maintenance shall be required.

## **8. Forms in Administrative Manual**

Forms have been copied from DWQ site and are available for use.

The following is a list of forms included in Appendix C:

1. Watershed Protection Inspection Report
2. Bioretention Area Certification
3. Bioretention Area Checklist
4. Wet Detention Pond Certification
5. Wet Detention Pond Checklist
6. Sand Filter Certification
7. Sand Filter Checklist
8. Extended Detention Wetland Certification
9. Extended Detention Wetland Checklist

Stormwater devices are to be reviewed as part of a submission for a building permit or a site plan review for a particular development. Operation and Maintenance Agreements will be treated similar to the current process according to the Town Development Ordinance.

## **9. Ordinance**

The following sections of the ordinance will be necessary to implement the rule:

Section 1: General Provisions

101 Title

This ordinance shall be officially known as “The Jordan Watershed Stormwater Ordinance for new Development.” It is referred to herein as “this ordinance.”

102 Authority

The Town Council is authorized to adopt this ordinance pursuant to North Carolina law, including but not limited to Article 14, Section 5 of the Constitution of North Carolina; North Carolina General Statutes Chapter 143-214.7 and rules promulgated by the Environmental Management Commission thereunder; Chapter 143-215.6A; Session Laws 2009-216, 2009-484; Chapter 153A-454; Chapter 160A, §§ 174, 185, 459.

103 Findings

It is hereby determined that:

Development and redevelopment alter the hydrologic response of local watersheds and increases stormwater runoff rates and volumes, flooding, soil erosion, stream channel erosion, nonpoint and point source pollution, and sediment transport and deposition, as well as reducing groundwater recharge;

These changes in stormwater runoff contribute to increased quantities of water-borne pollutants and alterations in hydrology that are harmful to public health and safety as well as to the natural environment; and

These effects can be managed and minimized by applying proper design and well-planned controls to manage stormwater runoff from development sites.

Further, the Commission has identified B. Everett Jordan reservoir, a water supply reservoir, as nutrient sensitive waters; has identified all or a portion of the reservoir as impaired waters under the federal Clean Water Act due to exceedances of the chlorophyll a standard; and has promulgated rules that have been amended and affirmed by the North Carolina General Assembly (the “Jordan Rules”) to reduce the average annual loads of nitrogen and phosphorus delivered to Jordan Reservoir from all point and nonpoint sources of these nutrients located within its watershed, including stormwater from new development in this jurisdiction;

Therefore, the Town of Summerfield establishes this set of water quality and quantity regulations to meet the requirements of state and federal law regarding control of stormwater runoff and discharge for development.

104 Purpose

The purpose of this ordinance is to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control the adverse effects of nitrogen and phosphorus in stormwater runoff and nonpoint and point source pollution associated with new development and *redevelopment* in the watershed of B. Everett Jordan reservoir. It has been determined that proper management of construction-

related and post-*development* stormwater runoff will minimize damage to public and private property and infrastructure; safeguard the public health, safety, and general welfare; and protect water and aquatic resources.

This ordinance seeks to meet its general purpose through the following specific objectives and means:

1. Establishing decision-making processes for development that protect the integrity of watersheds and preserve the health of water resources;
2. Requiring that new *development* and *redevelopment* maintain the *pre-development* hydrologic response in their post-*development* state for the applicable design storm to reduce flooding, streambank erosion, nonpoint and point source pollution and increases in stream temperature, and to maintain the integrity of stream channels and aquatic habitats;
3. Establishing minimum post-development stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;
4. Establishing design and review criteria for the construction, function, and use of structural stormwater BMP's that may be used to meet the minimum post-development stormwater management standards;
5. Encourage the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of greenspace, riparian buffers and other conservation areas to the maximum extent practicable;
6. Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater BMPs to ensure that they continue to function as designed, are maintained appropriately, and pose no threat to public safety;
7. Establishing administrative procedures for the submission, review, approval and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance;
8. Coordinating site design plans that include open space and natural areas with the Town of Summerfield Development Ordinance, Articles 4 and 5, and the Town of Summerfield Comprehensive Plan, Chapters 2, 3, 6, 7, and 8 as appropriate;
9. Controlling erosion and sedimentation from construction activities.

105 Applicability and jurisdiction

(A) General

Beginning with and subsequent to its effective date, this ordinance shall be applicable to all development and redevelopment, including, but not limited to, site plan applications, subdivision applications, and grading applications, unless exempt pursuant to this ordinance.

(B) Exemptions

Single family and duplex residential and recreational development and redevelopment that cumulatively disturbs less than one acre and is not part of a larger common plan of development or sale is exempt from the provisions of this ordinance.

Commercial, industrial, institutional, multifamily residential or local government development and redevelopment that cumulatively disturbs less than one-half acre and is not part of a larger common plan of development or sale is exempt from the provisions of this ordinance.

Development and Redevelopment that disturbs less than the above thresholds are not exempt if such activities are part of a larger common plan of development or sale and the larger common plan exceeds the relevant threshold, even though multiple, separate or distinct activities take place at different times on different schedules.

Development that is exempt from permit requirements of Section 404 of the federal Clean Water Act as specified in 40 CFR 232 (primarily, ongoing farming and forestry activities) are exempt from the provisions of this ordinance.

(C) No development or redevelopment until compliance and permit  
No development or redevelopment shall occur except in compliance with the provisions of this ordinance or unless exempted. No development or redevelopment for which a permit is required pursuant to this ordinance shall occur except in compliance with the provisions, conditions, and limitations of the permit.

(D) Map  
The provisions of this ordinance shall apply within the areas designated on the map titled “Jordan Watershed Stormwater Map of Summerfield, North Carolina” (“the Stormwater Map”), which is adopted simultaneously herewith. The Stormwater Map and all explanatory matter contained thereon accompanies and is hereby made a part of this ordinance.

The Stormwater Map shall be kept on file by the Stormwater Administrator and shall be updated to take into account changes in the land area covered by this ordinance and the geographic location of all engineered stormwater controls permitted under this ordinance. In the event of a dispute, the applicability of this ordinance to a particular area of land or BMP shall be determined by reference to the North Carolina Statutes, the North Carolina Administrative Code, and local zoning and jurisdictional boundary ordinances.

#### 106 Interpretation

(A) Meaning and Intent  
All provisions, terms, phrases, and expressions contained in this ordinance shall be construed according to the general and specific purposes set forth in Section 104, Purpose. If a different or more specific meaning is given for a term defined elsewhere in the Town of Summerfield’s Development Ordinance, the meaning and applications of the term in this ordinance shall control for purposes of application of this ordinance.

(B) Text Controls in Event of Conflict  
In the event of a conflict or inconsistency between the text of this ordinance and any heading, caption, figure, illustration, table, or map, the text shall control.

(C) Authority for Interpretation  
The Stormwater Administrator has authority to determine the interpretation of this ordinance. Any *person* may request an interpretation by submitting a written request to the Stormwater Administrator, who shall respond in writing within 30 days. The Stormwater Administrator shall keep on file a record of all written interpretations of this ordinance.

(D) References to Statutes, Regulations, and Documents

Whenever reference is made to a resolution, ordinance, statute, regulation, manual (including the *design manual*), or document, it shall be construed as a reference to the most recent edition of such that has been finalized and published with due provision for notice and comment, unless otherwise specifically stated.

(E) Computation of Time

The time in which an act is to be done shall be computed by excluding the first day and including the last day. If a deadline or required date of action falls on a Saturday, Sunday, or holiday observed by the Town of Summerfield, the deadline or required date of action shall be the next day that is not a Saturday, Sunday, or holiday observed by the Town of Summerfield. References to days are calendar days unless otherwise stated.

(F) Delegation of Authority

Any act authorized by this ordinance to be carried out by the Stormwater Administrator of the Town of Summerfield may be carried out by his or her designee.

(G) Usage

(1) Mandatory and Discretionary Terms

The words “shall,” “must,” and “will” are mandatory in nature, establishing an obligation or duty to comply with the particular provision. The words “may” and “should” are permissive in nature.

(2) Conjunctions

Unless the context clearly indicates the contrary, conjunctions shall be interpreted as follows: The word “and” indicates that all connected items, conditions, provisions and events apply. The word “or” indicates that one or more of the connected items, conditions, provisions or events apply.

(3) Tense, Plurals, and Gender

Words used in the present tense include the future tense. Words used in the singular number include the plural number and the plural number includes the singular number, unless the context of the particular usage clearly indicates otherwise. Words used in the masculine gender include the feminine gender, and vice versa.

(H) Measurement and Computation

Lot area refers to the amount of horizontal land area contained inside the lot lines of a lot or site.

107 Design Manual

(A) Reference to Design Manual

The Stormwater Administrator shall use the policy, criteria, and information, including technical specifications and standards, in the *design manual* as the basis for decisions about stormwater permits and about the design, implementation and performance of *engineered stormwater controls* and other practices for compliance with this ordinance.

The *Design Manual* includes a list of acceptable stormwater treatment practices, including specific design criteria for each stormwater practice. Stormwater treatment practices that are designed,

constructed, and maintained in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards of the Jordan Rules.

(B) Relationship of Design Manual to other Laws and Regulations

If the specifications or guidelines of the *Design Manual* are more restrictive or apply a higher standard than other laws or regulations, that fact shall not prevent application of the specifications or guidelines in the *Design Manual*.

(C) Changes to Standards and Specifications

If the standards, specifications, guidelines, policies, criteria, or other information in the Design Manual are amended subsequent to the submittal of an application for approval pursuant to this ordinance but prior to approval, the new information shall control and shall be utilized in reviewing the application and in implementing this ordinance with regard to the application.

108 Relationship to other laws, regulations and private agreements

(A) Conflict of laws

This ordinance is not intended to modify or repeal any other ordinance, rule, regulation or other provision of law. The requirements of this ordinance are in addition to the requirements of any other ordinance, rule, regulation or other provision of law. Where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human environmental health, safety, and welfare shall control.

(B) Private Agreements

This ordinance is not intended to revoke or repeal any easement, covenant, or other private agreement. However, where the regulations of this ordinance are more restrictive or impose higher standards or requirements than such an easement, covenant, or other private agreement, the requirements of this ordinance shall govern. Nothing in this ordinance shall modify or repeal any private covenant or deed restriction, but such covenant or restriction shall not legitimize any failure to comply with this ordinance. In no case shall the Town of Summerfield be obligated to enforce the provisions of any easements, covenants, or agreements between private parties.

109 Severability

If the provisions of any section, subsection, paragraph, subdivision or clause of this ordinance shall be adjudged invalid by a court of competent jurisdiction, such judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision or clause of this ordinance.

110 Effective Date and Transitional Provisions

(A) Effective Date

This ordinance shall take effect on \_\_\_\_\_, 201\_\_

(B) Final Approvals, Complete Applications

All *development* and *redevelopment* projects for which complete and full applications were submitted and approved by the Town of Summerfield prior to the effective date of this ordinance and which remain valid, unexpired, unrevoked and not otherwise terminated at the time of *development* shall be exempt from complying with all provisions of this ordinance dealing with the control and/or management of stormwater.

A phased development plan shall be deemed approved prior to the effective date of this ordinance if it has been approved by all necessary government units, it remains valid, unexpired, unrevoked and not otherwise terminated, and it shows:

1. For the initial or first phase of *development* or *redevelopment*, the type and intensity of use for a specific parcel or parcels, including at a minimum, the boundaries of the project and a subdivision plan that has been approved.
2. For any subsequent phase of *development* or *redevelopment*, sufficient detail so that implementation of the requirements of this ordinance to that phase of development would require material change in that phase of the plan.

(C) Violations Continue

Any violation of provisions existing on the effective date of this ordinance shall continue to be a violation under this ordinance and be subject to penalties and enforcement under this ordinance unless the use, *development*, construction, or other activity complies with the provisions of this ordinance.

## Section 2: Administration and Procedures

### 201 Review and Decision-making Entities

(A) Stormwater Administrator

(1) Designation

A Stormwater Administrator shall be designated by the Town of Summerfield to administer and enforce this ordinance

(2) Powers and Duties

In addition to the powers and duties that may be conferred by other provisions of the Town of Summerfield Development Ordinance and other laws, the Stormwater Administrator shall have the following powers and duties under this ordinance.

- a. To review and approve, approve with conditions, or disapprove applications for approval of plans pursuant to this ordinance.
- b. To make determinations and render interpretations of this ordinance.
- c. To establish application requirements and schedules for submittal and review of applications and appeals, to review and make recommendations to the Town of Summerfield Town Council on applications for *development* or *redevelopment* approvals.
- d. To enforce the provisions of this ordinance in accordance with its enforcement provisions.

- e. To maintain records, maps, forms, and other official materials as they relate to the adoption, amendment, enforcement, and administration of this ordinance.
- f. To provide expertise and technical assistance to the Town of Summerfield Town Council, upon request.
- g. To designate appropriate other *person(s)* who shall carry out the powers and duties of the Stormwater Administrator.
- h. To take any other action necessary to administer the provisions of this ordinance.

202 Review Procedures

(A) Permit Required; Must Apply for Permit

A stormwater permit is required for all *development* and *redevelopment* unless exempt pursuant to this ordinance. A permit may only be issued subsequent to a properly submitted and reviewed permit application, pursuant to this section.

(B) Effect of Permit

A stormwater permit shall govern the design, installation, and construction of stormwater management and control practices on the site, including *engineered stormwater controls* and elements of site design for stormwater management other than *engineered stormwater controls*.

The permit is intended to provide a mechanism for the review, approval, and inspection of the approach to be used for the management and control of stormwater for the *development* or *redevelopment* site consistent with the requirements of this ordinance, whether the approach consists of *engineered stormwater controls* or other techniques such as low-impact or low-density design. The permit does not continue in existence indefinitely after the completion of the project; rather, compliance after project construction is assured by the maintenance provisions of this ordinance.

(C) Authority to File Application

All applications required pursuant to this code shall be submitted to the Stormwater Administrator by the land *owner* or the land *owner's* duly authorized agent.

(D) Establishment of Application Requirements, Schedule, and Fees

(1) Application Contents and Form

The Stormwater Administrator shall establish requirements for the content and form of all applications and shall amend and update those requirements from time to time. At a minimum, the stormwater permit application shall describe in detail how post-development stormwater runoff will be controlled and managed, the design of all stormwater facilities and practices, and how the proposed project will meet the requirements of this ordinance.

(2) Submission Schedule

The Stormwater Administrator shall establish a submissions schedule for applications. The schedule shall establish deadlines by which complete applications must be submitted for the purpose of ensuring that there is adequate time to review applications, and that the various stages in the review process are accommodated.

(3) Permit Review Fees

The Town of Summerfield Town Council shall establish permit review fees as well as policies regarding refund of any fees upon withdrawal of an application, and may amend and update the fees and policies from time to time.

(4) Administrative Manual

For applications required under this code, the Stormwater Administrator shall compile the application requirements, submission schedule, fee schedule, a copy of this ordinance, and information on how and where to obtain the Design Manual in an Administrative manual, which shall be made available to the public.

(E) Submittal of Complete Application

Applications shall be submitted to the Stormwater Administrator pursuant to the application submittal schedule in the form established by the Stormwater Administrator, along with the appropriate fee established pursuant to this section.

An application shall be considered as timely submitted only when it contains all elements of a complete application pursuant to this ordinance, along with the appropriate fee. If the Stormwater Administrator finds that an application is incomplete, the applicant shall be notified of the deficient elements and shall be provided with an opportunity to submit a complete application. However, the submittal of an incomplete application shall not suffice to meet a deadline contained in the submission schedule established above.

(F) Review

Within \_\_\_\_\_ working days after a complete application is submitted, the Stormwater Administrator shall review the application and determine whether the application complies with the standards of this ordinance.

(1) Approval

If the Stormwater Administrator finds that the application complies with the standards of this ordinance, the Stormwater Administrator shall approve the application. The Stormwater Administrator may impose conditions of approval as needed to ensure compliance with this ordinance. The conditions shall be included as part of the approval.

(2) Fails to Comply

If the Stormwater Administrator finds that the application fails to comply with the standards of this ordinance, the Stormwater Administrator shall notify the applicant and shall indicate how the application fails to comply. The applicant shall have the opportunity to submit a revised application.

(3) Revision and Subsequent Review

A complete revised application shall be reviewed by the Stormwater Administrator within 5 days after its re-submittal and shall be approved, approved with conditions or disapproved.

If a revised application is not re-submitted within thirty (30) calendar days from the date the applicant was notified, the application shall be considered withdrawn and a new submittal for the same or substantially the same project shall be required along with the appropriate fee for a new submittal.

One re-submittal of a revised application may be submitted without payment of an additional permit review fee. Any re-submittal after the first re-submittal shall be accompanied by a permit review fee additional fee, as established pursuant to this ordinance.

## 203 Applications for approval

### (A) Concept Plan and Consultation Meeting

Before a stormwater management permit application is deemed complete, the Stormwater Administrator or developer may request a consultation on a concept plan for the post-construction stormwater management system to be utilized in the proposed *development* project. The consultation meeting should take place at the time of the preliminary plan of subdivision or other early step in the *development* process. The purpose of this meeting is to discuss the stormwater management measures necessary for the proposed project, as well as to discuss and assess constraints, opportunities and potential approaches to stormwater management designs before formal site design engineering is commenced. Local watershed plans, the Summerfield Comprehensive Plan and other relevant resource protection plans should be consulted in the discussion of the concept plan.

To accomplish this goal, the following information should be included in the concept plan, which should be submitted in advance of the meeting:

#### (1) Existing Conditions/proposed Site Plans

Existing conditions and proposed site layout sketch plans, which illustrate at a minimum: existing and proposed topography; perennial and intermittent streams; mapping of predominant soils from soil surveys; stream and other buffers and features used in designing buffers and meeting any applicable buffer requirements; boundaries of existing predominant vegetation; proposed limits of clearing and grading; and location of existing and proposed roads, buildings, parking areas and other impervious surfaces.

#### (2) Natural Resources Inventory

A written or graphic inventory of natural resources at the site and surrounding area as it exists prior to the commencement of the project. This description should include a discussion of soil conditions, forest cover, geologic features, topography, wetlands, and native vegetative areas on the site, as well as the location and boundaries of other natural feature protection and conservation areas such as lakes, ponds, floodplains, stream buffers and other setbacks (e.g., drinking water well setbacks, septic setbacks, etc.). Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for *development* and stormwater management.

### (3) Stormwater Management System Concept Plan

A written or graphic concept plan of the proposed post-*development* stormwater management system including: preliminary selection and location of proposed *engineered stormwater controls*; low-impact design elements; location of existing and proposed conveyance systems such as grass channels, swales, and storm drains; flow paths; location of floodplain/floodway limits; relationship of site to upstream and downstream properties and drainages; and preliminary location of any proposed stream channel modifications, such as bridge or culvert crossings.

### (B) Stormwater Management Permit Application

The stormwater management permit application shall detail how post-*development* stormwater runoff will be controlled and managed and how the proposed project will meet the requirements of this ordinance, including Section 3, Standards. All such plans shall be prepared by a qualified registered North Carolina professional engineer, surveyor, soil scientist or landscape architect, and the engineer, surveyor, soil scientist or landscape architect shall perform services only in their area of competence, and shall verify that the design of all stormwater management facilities and practices meets the submittal requirements for complete applications, that the designs and plans are sufficient to comply with applicable standards and policies found in the *Design Manual*, and that the designs and plans ensure compliance with this ordinance.

The submittal shall include all of the information required in the submittal checklist established by the Stormwater Administrator. Incomplete submittals shall be treated pursuant to Section 202(E).

### (C) As-Built Plans and Final Approval

Upon completion of a project, and before a certificate of occupancy shall be granted, the applicant shall certify that the completed project is in accordance with the approved stormwater management plans and designs, and shall submit actual “as built” plans for all stormwater management facilities or practices after final construction is completed.

The plans shall show the final design specifications for all stormwater management facilities and practices and the field location, size, depth, and planted vegetation of all measures, controls, and devices, as installed. The designer of the stormwater management measures and plans shall certify, under seal, that the as-built stormwater measures, controls, and devices are in compliance with the approved stormwater management plans and designs and with the requirements of this ordinance. A final inspection and approval by the Stormwater Administrator shall occur before the release of any performance securities.

### (D) Other Permits

No certificate of compliance or occupancy shall be issued by the Town of Summerfield without final as-built plans and a final inspection and approval by the Stormwater Administrator, except where multiple units are served by the stormwater practice or facilities, in which case the Town of Summerfield Planning Department may elect to withhold a percentage of permits or certificates of occupancy until as-built plans are submitted and final inspection and approval has occurred.

## 204 Approvals

### (A) Effect of Approval

Approval authorizes the applicant to go forward with only the specific plans and activities authorized in the permit. The approval shall not be construed to exempt the applicant from obtaining other applicable approvals from local, state and federal authorities.

### (B) Time Limit/Expiration

An approved plan shall become null and void if the applicant fails to make *substantial progress* on the site within one year after the date of approval. The Stormwater Administrator may grant a single, one-year extension of this time limit, for good cause shown, upon receiving a written request from the applicant before the expiration of the approved plan.

In granting the extension, the Stormwater Administrator may require compliance with standards adopted since the original application was submitted unless there has been substantial reliance on the original permit and the change in standards would infringe the applicant's vested rights.

## 205 Appeals

### (A) Right of Appeal

Any aggrieved *person* affected by any decision, order, requirement, or determination relating to the interpretation or application of this ordinance made by the Stormwater Administrator, may file an appeal to the Board of Adjustment within 30 days. Appeals of variance requests shall be made as provided in the Section of variances. In the case of requests for review of proposed civil penalties for violations of this ordinance, the Board of Adjustment shall make a final decision on the request for review within 90 days of receipt of the date the request for review is filed.

## Section 3: Standards

### 301 General Standards

All development and redevelopment to which this ordinance applies shall comply with the standards of this section. The approval of the stormwater permit shall require an enforceable restriction on property usage that runs with the land, such as a recorded deed restriction or protective covenants, to ensure that future development and redevelopment maintains the site consistent with the approved project plans.

### 302 Nitrogen and Phosphorus Loading

(A) Nitrogen and Phosphorus loads contributed by the proposed new *development* shall not exceed the following unit-area mass loading rates: 3.8 and 1.43 pounds per acre per year for nitrogen and phosphorus, respectively.

(B) Notwithstanding 15A NCAC 2B.104(q), *redevelopment* subject to this ordinance that would replace or expand existing structures or improvements and would result in a net increase in *built upon area* shall have the option of either meeting the loading standards identified in subsection (A) or meeting a loading rate that achieves the following nutrient loads compared to

the *existing development*: 8 percent and 5 percent reduction for nitrogen and phosphorus, respectively.

(C) The developer shall determine the need for engineered stormwater controls to meet these loading rate targets by using the *approved accounting tool*.

### 303 Nitrogen and Phosphorus Standard is Supplemental; TSS Removal

The nitrogen and phosphorus loading standards in this ordinance are supplemental to, not replacements for, stormwater standards otherwise required by federal, state or local law, including without limitation any riparian buffer requirements applicable to the location of the *development*. This includes, without limitation, the riparian buffer protection requirements of 15A NCAC 2B.0267 and .0268.

All *stormwater systems* used to meet these requirements shall be designed to have a minimum of 85% average annual removal for Total Suspended Solids (TSS).

### 304 Control and Treatment of Runoff Volume

*Stormwater systems* shall be designed to control and treat the runoff generated from all surfaces by one inch of rainfall. The treatment volume shall be drawn down pursuant to standards specific to each practice as provided in the *Design Manual*. To ensure that the integrity and nutrient processing functions of receiving waters and associated riparian buffers are not compromised by erosive flows, stormwater flows from the *development* shall not contribute to degradation of waters of the State. At a minimum, the *development* shall not result in a net increase in peak flow leaving the site from pre-development conditions for the *one-year, 24-hour storm* event.

### 305 Partial Offset of Nutrient Control Requirements

Development subject to this ordinance shall attain a maximum nitrogen loading rate on-site of six pounds per acre per year for single family, detached and duplex residential development and ten pounds per acre per year for other development, including multi-family residential, commercial and industrial and shall meet any requirements for engineered stormwater controls otherwise imposed by this ordinance. A developer subject to this ordinance may achieve the additional reductions in nitrogen and phosphorus loading required by this ordinance by making offset payments to the NC Ecosystem Enhancement Program contingent upon acceptance of payments by that Program. A developer may use an offset option provided by the Town of Summerfield. A developer may propose other offset measures to the Town of Summerfield, including providing his or her own offsite offset or utilizing a private seller. All offset measures permitted by this ordinance shall meet the requirements of 15A NCAC 02B .0273 (2) through (4) and 15A NCAC 02b .0240.

### 306 Evaluation of Standards for Stormwater Control Measures

#### (A) Evaluation According to Contents of Design Manual

All stormwater control measures, stormwater systems and stormwater treatment practices (also referred to as Best Management Practices, or BMP's) required under this ordinance shall be evaluated by the Stormwater Administrator according to the policies, criteria, and information, including technical specifications and standards and the specific design criteria for each

stormwater practice, in the Design Manual. The Stormwater Administrator shall determine whether proposed BMPs will be adequate to meet the requirements of this ordinance.

(B) Determination of Adequacy; Presumptions and Alternatives

Stormwater treatment practices that are designed, constructed, and maintained in accordance with the criteria and specifications in the *Design Manual* and the *approved accounting tool* will be presumed to meet the minimum water quality and quantity performance standards of this ordinance. Whenever an applicant proposes to utilize a practice or practices not designed and constructed in accordance with the criteria and specifications in the *Design Manual*, the applicant shall have the burden of demonstrating that the practice(s) will satisfy the minimum water quality and quantity performance standards of this ordinance. The Stormwater Administrator may require the applicant to provide the documentation, calculations, and examples necessary for the Stormwater Administrator to determine whether such an affirmative showing is made.

307 Dedication of BMPs, Facilities & Improvements

The Town of Summerfield may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all the requirements of this ordinance and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

308 Variances

(A) Any *person* may petition the Town of Summerfield for a variance granting permission to use the *person's* land in a manner otherwise prohibited by this ordinance. For all proposed *major* and *minor* variances from the requirements of this ordinance, the local Watershed Review Board shall make findings of fact showing that:

- (1) there are practical difficulties or unnecessary hardships that prevent compliance with the strict letter of the ordinance;
- (2) the variance is in harmony with the general purpose and intent of the local watershed protection ordinance and preserves its spirit; and
- (3) in granting the variance, the public safety and welfare have been assured and substantial justice has been done.

(B) In the case of a request for a *minor variance*, the Town of Summerfield may vary or modify any regulations or provisions of the ordinance so that the spirit of the ordinance shall be observed, public safety and welfare secured, and substantial justice done may impose reasonable and appropriate conditions and safeguards upon any variance it grants.

(C) The Town of Summerfield may attach conditions to the *major* or *minor* variance approval that support the purpose of the local watershed protection ordinance. If the variance request qualifies as a *major variance*, and the Town of Summerfield decides in favor of granting the *major variance*, the Board shall then prepare a preliminary record of the hearing and submit it to the *Commission* for review and approval. If the *Commission* approves the *major variance* or approves with conditions or stipulations added, then the *Commission* shall prepare a *Commission* decision which authorizes the Town of Summerfield to issue a final decision which would include any conditions or stipulations added by the *Commission*. If the *Commission* denies the major variance,

then the *Commission* shall prepare a decision to be sent to the Town of Summerfield. The Town of Summerfield shall prepare a final decision denying the *major variance*.

(D) Appeals from the local government decision on a *major* or *minor variance* request are made on certiorari to the local Superior Court. Appeals from the *Commission* decision on a *major variance* request are made on judicial review to the Superior Court.

#### Section 4: Maintenance

##### 401 General Standards for Maintenance

###### (A) Function of BMPs as Intended

The *owner* of each *engineered stormwater control* installed pursuant to this ordinance shall maintain and operate it so as to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the *engineered stormwater control* was designed.

###### (B) Annual Maintenance Inspection and Report

The *person* responsible for maintenance of any *engineered stormwater control* installed pursuant to this ordinance shall submit to the Stormwater Administrator on inspection report from one of the following *persons* performing services only in their area of competence: a qualified registered North Carolina professional engineer, surveyor, landscape architect, soil scientist, aquatic biologist, or *person* certified by the North Carolina Cooperative Extension Service for stormwater treatment practice inspection and maintenance. The inspection report shall contain all of the following:

- (1) The name and address of the land *owner*;
- (2) The recorded book and page number of the lot of each *engineered stormwater control*;
- (3) A statement that an inspection was made of all *engineered stormwater controls*;
- (4) The date the inspection was made;
- (5) A statement that all inspected *engineered stormwater controls* are performing properly and are in compliance with the terms and conditions of the approved maintenance agreement required by this ordinance; and
- (6) The original signature and seal of the engineer, surveyor, or landscape architect.

All inspection reports shall be on forms supplied by the Stormwater Administrator. An original inspection report shall be provided to the Stormwater Administrator beginning one year from the date of as-built certification and each year thereafter on or before the date of the as-built certification.

##### 402 Operation and Maintenance Agreement

###### (A) In General

Prior to the conveyance or transfer of any lot or building site to be served by a *engineered stormwater control* pursuant to this ordinance, and prior to issuance of any permit for *development* requiring a *engineered stormwater control* pursuant to this ordinance, the applicant or *owner* of the site must execute an operation and maintenance agreement that shall be binding on all subsequent *owners* of the site, portions of the site, and lots or parcels served by the *engineered stormwater control*. Until the transference of all property, sites, or lots served by the *engineered stormwater control*, the original *owner* or applicant shall have the primary responsibility for carrying out the provisions of the maintenance agreement.

The operation and maintenance agreement shall require the owner or owners to maintain, repair and, if necessary, reconstruct the *engineered stormwater control*, shall state the terms, conditions, and schedule of maintenance for the *engineered stormwater control*. In addition, it shall grant to the Town of Summerfield a right of entry in the event that the Stormwater Administrator has reason to believe it has become necessary to inspect, monitor, maintain, repair, or reconstruct the *engineered stormwater control*; however, in no case shall the right of entry, of itself, confer an obligation on the Town of Summerfield to assume responsibility for the *engineered stormwater control*.

The operation and maintenance agreement must be approved by the Stormwater Administrator prior to plan approval, and it shall be referenced on the final plat and shall be recorded with the County Register of Deeds upon final plat approval. A copy of the recorded maintenance agreement shall be given to the Stormwater Administrator within fourteen (14) days following its recordation.

(B) Special Requirement for Homeowners' and Other Associations

For all *engineered stormwater controls* required pursuant to this ordinance and that are to be or are owned and maintained by a homeowners' association, property owners' association, or similar entity, the required operation and maintenance agreement shall include all of the following provisions:

- (1) Acknowledgement that the association shall continuously operate and maintain the stormwater control and management facilities.
- (2) Establishment of an escrow account, which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction of the *engineered stormwater controls*. If *engineered stormwater controls* are not performing adequately or as intended or are not properly maintained, the Town of Summerfield, in its sole discretion, may remedy the situation, and in such instances the Town of Summerfield shall be fully reimbursed from the escrow account. Escrowed funds may be spent by the association for sediment removal, structural, biological or vegetative replacement, major repair, and reconstruction of *engineered stormwater controls*, provided that the Town of Summerfield shall first consent to the expenditure.
- (3) Both developer contribution and annual sinking funds shall fund the escrow account. Prior to plat recordation or issuance of construction permits, whichever shall occur first, the developer shall pay into the escrow account an amount equal to fifteen (15) per cent of the initial construction cost of the *engineered stormwater controls*. Two-thirds (2/3) of the total amount of sinking fund budget shall be deposited into the escrow account within the first five (5) years and the full amount shall be deposited within ten (10) years following initial construction of the *engineered stormwater controls*. Funds shall be deposited each year into the escrow account. A portion of the annual assessments of the association shall include an allocation into the escrow account. Any funds drawn down from the escrow account shall be replaced in accordance with the schedule of anticipated work used to create the sinking fund budget.

- (4) The percent of developer contribution and lengths of time to fund the escrow account may be varied by the Town of Summerfield depending on the design and materials of the stormwater control and management facility.
- (5) Granting to the Town of Summerfield a right of entry to inspect, monitor, maintain, repair, and reconstruct *engineered stormwater controls*.
- (6) Allowing the Town of Summerfield to recover from the association and its members any and all costs the Town of Summerfield expends to maintain or repair the *engineered stormwater controls* or to correct any operational deficiencies. Failure to pay the Town of Summerfield all of its expended costs, after forty-five days written notice, shall constitute a breach of the agreement. In case of a deficiency, the Town of Summerfield shall thereafter be entitled to bring an action against the association and its members to pay, or foreclose upon the lien hereby authorized by the agreement against the property, or both. Interest, collection costs, and attorney fees shall be added to the recovery.
- (7) A statement that this agreement shall not obligate the Town of Summerfield to maintain or repair *engineered stormwater controls*, and the Town of Summerfield shall not be liable to any *person* for the condition or operation of *engineered stormwater controls*.
- (8) A statement that this agreement shall not in any way diminish, limit, or restrict the right of the Town of Summerfield to enforce any of its ordinances as authorized by law.
- (9) A provision indemnifying and holding harmless the Town of Summerfield for any costs and injuries arising from or related to the engineered stormwater control, unless the Town of Summerfield has agreed in writing to assume the maintenance responsibilities for the BMP and has accepted dedication of any and all rights necessary to carry out that maintenance.

#### 403 Inspection Program

Inspections and inspection programs by the Town of Summerfield may be conducted or established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in BMPs; and evaluating the condition of BMPs.

If the *owner* or occupant of any property refuses to permit such inspection, the Stormwater Administrator shall proceed to obtain an administrative search warrant pursuant to G.S. 15-27.2 or its successor. No *person* shall obstruct, hamper or interfere with the Stormwater Administrator while carrying out his or her official duties.

#### 404 Performance Security for Installation and Maintenance

##### (A) Required

The Town of Summerfield shall require the submittal of a performance security bond with surety, cash escrow, letter of credit or other acceptable legal arrangement prior to issuance of a permit in order to insure that the engineered stormwater controls are

- (1) Installed by the permit holder as required by the approved stormwater management plan, and/or
- (2) Maintained by the owner as required by the operation and maintenance agreement.

##### (B) Amount

- (1) Installation

The amount of an installation performance security shall be the total estimated construction cost of the BMPs approved under the permit, plus 25%.

(2) Maintenance

The amount of a maintenance performance security shall be the present value of an annuity of perpetual duration based on a reasonable estimate of the annual cost of inspection, operation and maintenance of the BMPs approved under the permit, at a discount rate that reflects the jurisdiction's cost of borrowing minus a reasonable estimate of long-term inflation.

(C) Uses of Performance Security

(1) Forfeiture Provisions

The performance security shall contain forfeiture provisions for failure, after proper notice, to complete work within the time specified, or to initiate or maintain any actions which may be required of the applicant or owner in accordance with this ordinance, approvals issued pursuant to this

(2) Default

Upon default of the *owner* to construct, maintain, repair and, if necessary, reconstruct any *engineered stormwater control* in accordance with the applicable permit or operation and maintenance agreement, the Stormwater Administrator shall obtain and use all or any portion of the security to make necessary improvements based on an engineering estimate. Such expenditure of funds shall only be made after requesting the *owner* to comply with the permit or maintenance agreement. In the event of a default triggering the use of installation performance security, the Town of Summerfield shall not return any of the unused deposited cash funds or other security, which shall be retained for maintenance.

(3) Costs in Excess of Performance Security

If the Town of Summerfield takes action upon such failure by the applicant or *owner*, the Town of Summerfield may collect from the applicant or *owner* the difference between the amount of the reasonable cost of such action and the amount of the security held, in addition to any penalties or damages due.

(4) Refund

Within sixty days of the final approval, the installation performance security shall be refunded to the applicant or terminated, except any amount attributable to the cost (plus 25%) of landscaping installation and ongoing maintenance associated with the BMPs covered by the security. Any such landscaping shall be inspected one (1) year after installation with replacement for compliance with the approved plans and specifications and, if in compliance, the portion of the financial security attributable to landscaping shall be released.

405 Notice to Owners

(A) Deed Recordation and Indications On Plat

The applicable operations and maintenance agreement [, conservation easement, or dedication and acceptance into public maintenance (whichever is applicable)] pertaining to every *engineered stormwater control* shall be referenced on the final plat and shall be recorded with the County Register of Deeds upon final plat approval. If no subdivision plat is recorded for the site, then the operations and maintenance agreement [, conservation easement, or dedication and acceptance into public maintenance (whichever is applicable)] shall be recorded with the County Register of Deeds so as to appear in the chain of title of all subsequent purchasers under generally accepted searching principles.

(B) Signage

Where appropriate in the determination of the Stormwater Administrator to assure compliance with this ordinance, *engineered stormwater controls* shall be posted with a conspicuous sign stating who is responsible for required maintenance and annual inspection. The sign shall be maintained so as to remain visible and legible.

#### 406 Records of Installation and Maintenance Activities

The *owner* of each *engineered stormwater control* shall keep records of inspections, maintenance, and repairs for at least five years from the date of creation of the record and shall submit the same upon reasonable request to the Stormwater Administrator.

#### 407 Nuisance

The *owner* of each stormwater BMP, whether *engineered stormwater control* or *non-engineered stormwater control*, shall maintain it so as not to create or result in a nuisance condition.

#### 408 Maintenance Easement

Every engineered stormwater control installed pursuant to this ordinance shall be made accessible for adequate maintenance and repair by a maintenance easement. The easement shall be recorded and its terms shall specify who may make use of the easement and for what purposes.

### Section 5: Enforcement and Violations

#### 501 General

##### (A) Authority to Enforce

The provisions of this ordinance shall be enforced by the Stormwater Administrator, his or her designee, or any authorized agent of the Town of Summerfield. Whenever this section refers to the Stormwater Administrator, it includes his or her designee as well as any authorized agent of the Town of Summerfield.

##### (B) Violation Unlawful

Any Failure to comply with an applicable requirement, prohibition, standard, or limitation imposed by this ordinance, or the terms or conditions of any permit or other *development* approval or authorization granted pursuant to this ordinance, is unlawful and shall constitute a violation of this ordinance.

##### (C) Each Day a Separate Offense

Each day that a violation continues shall constitute a separate and distinct violation or offense.

##### (D) Responsible Persons/Entities

Any *person* who erects, constructs, reconstructs, alters (whether actively or passively), or fails to erect, construct, reconstruct, alter repair or maintain any structure, BMP, *engineered stormwater control*, practice, or condition in violation of this ordinance shall be subject to the remedies, penalties, and/or enforcement actions in accordance with this section. *Persons* subject to the remedies and penalties set forth herein may include any architect, engineer, builder, contractor, developer, agency, or any other person who participates in, assists, directs, creates, causes, or maintains a condition that results in or constitutes a violation of this ordinance, or fails to take appropriate action, so that a violation of this ordinance results or persists; or an *owner*, any tenant or occupant, or any other *person*, who has control over, or responsibility for, the use or *development* of the property on which the violation occurs.

For the purposes of this article, responsible person(s) shall include but not be limited to:

##### (1) *Person* Maintaining Condition Resulting in or Constituting Violation

An architect, engineer, builder, contractor, developer, agency, or any other *person* who participates in, assists, directs, creates, causes, or maintains a condition that constitutes a violation

of this ordinance, or fails to take appropriate action, so that a violation of this ordinance results or persists.

(2) Responsibility for Land or Use of Land

The *owner* of the land on which the violation occurs, any tenant or occupant of the property, any *person* who is responsible for stormwater controls or practices pursuant to a private agreement or public document, or any *person*, who has control over, or responsibility for, the use or *development* of the property.

502 Remedies and Penalties

The remedies and penalties provided for violations of this ordinance, whether civil or criminal, shall be cumulative and in addition to any other remedy provided by law, and may be exercised in any order.

(A) Remedies

(1) Withholding of Certificate of Occupancy

The Stormwater Administrator or other authorized agent may refuse to issue a certificate of occupancy for the building or other improvements constructed or being constructed on the site and served by the stormwater practices in question until the applicant or other responsible *person* has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.

(2) Disapproval of Subsequent Permits and Development Approvals

As long as a violation of this ordinance continues and remains uncorrected, the Stormwater administrator or other authorized agent may withhold, and the Zoning Board may disapprove, any request for permit or *development* approval or authorization provided for by this ordinance or the zoning or subdivision, as appropriate, for the land on which the violation occurs.

(3) Injunction, Abatements, etc.

The Stormwater Administrator, with the written authorization of the Town Manager, may institute an action in a court of competent jurisdiction for a mandatory or prohibitory injunction and order of abatement to correct a violation of this ordinance. Any person violating this ordinance shall be subject to the full range of equitable remedies provided in the General Statutes or at common law.

(4) Correction as Public Health Nuisance, Costs as Lien, etc.

If the violation is deemed dangerous or prejudicial to the public health or public safety and is within the geographic limits prescribed by North Carolina G.S. §160A-193, the Stormwater Administrator, with the written authorization of the Town Manager, may cause the violation to be corrected and the costs to be assessed as a lien against the property.

(B) Civil Penalties

The Stormwater Administrator may assess a civil penalty against any person who violates any provision of this ordinance or of a permit or other requirement pursuant to this ordinance. Civil penalties may be assessed up to the full amount of penalty authorized by G.S. 143-215.6A

(C) Criminal Penalties

Violation of this ordinance may be enforced as a criminal matter under North Carolina law.

503 Procedures

(A) Initiation/Complaint

Whenever a violation of this ordinance occurs, or is alleged to have occurred, any person may file a written complaint. Such complaint shall state fully the alleged violation and the basis thereof, and shall be filed with the Stormwater Administrator, who shall record the complaint. The complaint shall be investigated promptly by the Stormwater Administrator.

(B) Inspection

The Stormwater Administrator shall have the authority, upon presentation of proper credentials, to enter and inspect any land, building, structure, or premises to ensure compliance with this ordinance.

(C) Notice of Violation and Order to Correct

When the Stormwater Administrator finds that any building, structure, or land is in violation of this ordinance, the Stormwater Administrator shall notify, in writing, the property *owner* or other *person* violating this ordinance. The notification shall indicate the nature of the violation, contain the address or other description of the site upon which the violation is occurring, order the necessary action to abate the violation, and give a deadline for correcting the violation. If civil penalties are to be assessed, the notice of violation shall also contain a statement of the civil penalties to be assessed, the time of their accrual, and the time within which they must be paid or be subject to collection as a debt.

The Stormwater Administrator may deliver the notice of violation and correction order by any means authorized for the service of documents by Rule 4 of the North Carolina Rules of Civil Procedure.

If a violation is not corrected within a reasonable period of time, as provided in the notification, the Stormwater Administrator may take appropriate action under this ordinance to correct and abate the violation and to ensure compliance with this ordinance.

(D) Extension of Time

A *person* who receives notice of violation and correction order, or the *owner* of the land on which the violation occurs, may submit to the Stormwater Administrator a written request for an extension of time for correction of the violation. On determining that the request includes enough information to show that the violation cannot be corrected within the specified time limit for reasons beyond the control of the *person* requesting the extension, the Stormwater Administrator may extend the time limit as is reasonably necessary to allow timely correction of the violation, up to, but not exceeding \_\_\_\_\_ days. The Stormwater Administrator may grant \_\_\_\_\_-day extensions in addition to the foregoing extension if the violation cannot be corrected within the permitted time due to circumstances beyond the control of the *person* violating this ordinance. The Stormwater Administrator may grant an extension only by written notice of extension. The notice of extension shall state the date prior to which correction must be made, after which the violator will be subject to the penalties described in the notice of violation and correction order.

(E) Enforcement After Time to Correct

After the time has expired to correct a violation, including any extension(s) if authorized by the Stormwater Administrator, the Stormwater Administrator shall determine if the violation is corrected. The Stormwater Administrator may act to impose one or more of the remedies and penalties authorized by this ordinance whether or not the violation has been corrected.

(F) Emergency Enforcement

If delay in correcting a violation would seriously threaten the effective enforcement of this ordinance or pose an immediate danger to the public health, safety, or welfare, then the Stormwater Administrator may order the immediate cessation of a violation. Any person so ordered shall cease any violation immediately. The Stormwater Administrator may seek immediate enforcement, without prior written notice, through any remedy or penalty authorized by this article.

## Section 6: Definitions

## 601 Terms Defined

When used in this ordinance, the following words and terms shall have the meaning set forth in this section, unless other provisions of this ordinance specifically indicate otherwise.

### Approved Accounting Tool

The accounting tool for nutrient loading approved by the EMC for the relevant geography and development type under review.

### Built-upon Area (BUA)

That portion of a *development* project that is covered by impervious or partially impervious surface including, but not limited to, buildings; pavement and gravel areas such as roads, parking lots, and paths; and recreation facilities such as tennis courts. "Built-upon area" does not include a wooden slatted deck, the water of a swimming pool, or pervious or partially pervious paving material to the extent that the paving material absorbs water or allows water to infiltrate through the paving material. The project site or area must exclude any land adjacent to the area disturbed by the project that has been counted as pervious by any other *development* regulated under a federal, state or local stormwater regulation.

### Commission

The North Carolina Environmental Management Commission, in the *Department*.

### Department

The North Carolina Department of Environmental and Natural Resources.

### Design Manual

The stormwater design manual approved for use in this part of the Jordan Watershed by the Department for the proper implementation of the requirements of the Jordan Watershed stormwater program. All references herein to the design manual are to the latest published edition or revision.

### Development

Any *land-disturbing* activity that increases the amount of *built-upon area* or that otherwise decreases the infiltration of precipitation into the soil.

### Division

The Division of Water Quality in the *Department*

### Existing Development

*Development* not otherwise exempted by this ordinance that meets one of the following criteria:

- (a) It either is built or has established a statutory or common-law vested right as of the effective date of this ordinance; or
- (b) It occurs after the effective date of this ordinance, but does not result in a net increase in built-upon area and does not decrease the infiltration of precipitation into the soil.

### Engineered Stormwater Control

A physical device designed to trap, settle out, or filter pollutants from stormwater runoff; to alter or reduce stormwater runoff velocity, amount, timing, or other characteristics; to approximate the pre-*development* hydrology on a developed site; or to achieve any combination of these goals. *Engineered stormwater control* includes physical practices such as constructed wetlands, vegetative practices, filter strips, grassed swales, and other methods installed or created on real property. "Engineered stormwater control" is synonymous with "structural practice," "stormwater control facility," "stormwater control practice," "stormwater treatment practice," "stormwater management practice," "stormwater control measures," "structural stormwater treatment systems," and similar terms used in this ordinance. It is a broad term that may include practices that do not require design by a professionally licensed engineer.

#### Land Disturbing Activity

Any use of the land that results in a change in the natural cover or topography that may cause or contribute to sedimentation.

#### Larger Common Plan of Development or Sale

Any area where multiple separate and distinct construction or *land-disturbing activities* will occur under one plan. A plan is any announcement or piece of documentation (including but not limited to a sign, public notice or hearing, sales pitch, advertisement, loan application, drawing, permit application, zoning request, or computer design) or physical demarcation (including but not limited to boundary signs, lot stakes, or surveyor markings) indicating that construction activities may occur on a specified plot.

#### Major Variance

A variance from the minimum statewide watershed protection or Jordan rules that results in the relaxation, by a factor greater than five percent of any buffer, density or built-upon area requirement under the high density option; any variation in the design, maintenance or operation requirements of a wet detention pond or other approved stormwater management system; or relaxation by a factor greater than 10 percent, of any management requirement under the low density option. For provisions in this ordinance that are more stringent than the state's minimum water supply protection rules and Jordan rules, a variance to the ordinance is not considered a *major variance* as long as the result of the variance is not less stringent than the state's minimum requirements.

#### Minor Variance

A variance from the minimum statewide watershed protection or Jordan rules that results in a relaxation, by a factor of up to five percent of any buffer, density or built-upon area requirement under the high density option; or that results in a relaxation by a factor up to 10 percent, of any management requirements under the low density option.

#### 1-Year, 24-Hour Storm

The surface runoff resulting from a 24-hour rainfall of an intensity expected to be equaled or exceeded, on average, once in 12 months and with a duration of 24 hours.

#### Outfall

A point at which stormwater (1) enters surface water or (2) exits the property of a particular *owner*.

### Owner

The legal or beneficial owner of land, including but not limited to a mortgagee or vendee in possession, receiver, executor, trustee, or long-term or commercial lessee, or any other *person* or entity holding proprietary rights in the property or having legal power of management and control of the property. "Owner" shall include long-term commercial tenants; management entities, such as those charged with or engaged in the management of properties for profit; and every other *person* or entity having joint ownership of the property. A second lender not in possession of the property does not constitute an owner, unless the secured lender is included within the meaning of "owner" under another description in this definition, such as a management entity.

### Person

Includes, without limitation, individuals, firms, partnerships, associations, institutions, corporations, municipalities and other political subdivisions, and governmental agencies.

### Redevelopment

Any *development* on previously-developed land. *Redevelopment* of structures or improvements that (i) existed prior to December 2001 and (ii) would not result in an increase in *built-upon area* and (iii) provides stormwater control at least equal to the previous development is not required to meet nutrient loading targets of this ordinance.

### Stormwater System

All engineered stormwater controls owned or controlled by a *person* that drain to the same *outfall*, along with the conveyances between those controls. A system may be made up of one or more stormwater controls.

### Substantial Progress

For the purposes of determining whether sufficient progress has been made on an approved plan, one or more of the following construction activities toward the completion of a site or subdivision plan shall occur: obtaining a grading permit and conducting grading activity on a continuous basis and not discontinued for more than thirty (30) days; or installation and approval of on-site infrastructure; or obtaining a building permit for the construction and approval of a building foundation. "Substantial progress" for the purposes of determining whether an approved plan is null and void is not necessarily the same as "substantial expenditures" used for determining vested rights pursuant to applicable law.

## **10. Nutrient Loading Accounting Tool**

The Town of Summerfield will use the Jordan/Falls Nutrient Load Accounting Tool as provided in the Jordan Model Program Appendices – Appendix O.

## Appendix A, Program Contact and Professional Qualifications

Michael Brandt, Town Manager, AICP

Chris Anderson, Town Planner, AICP

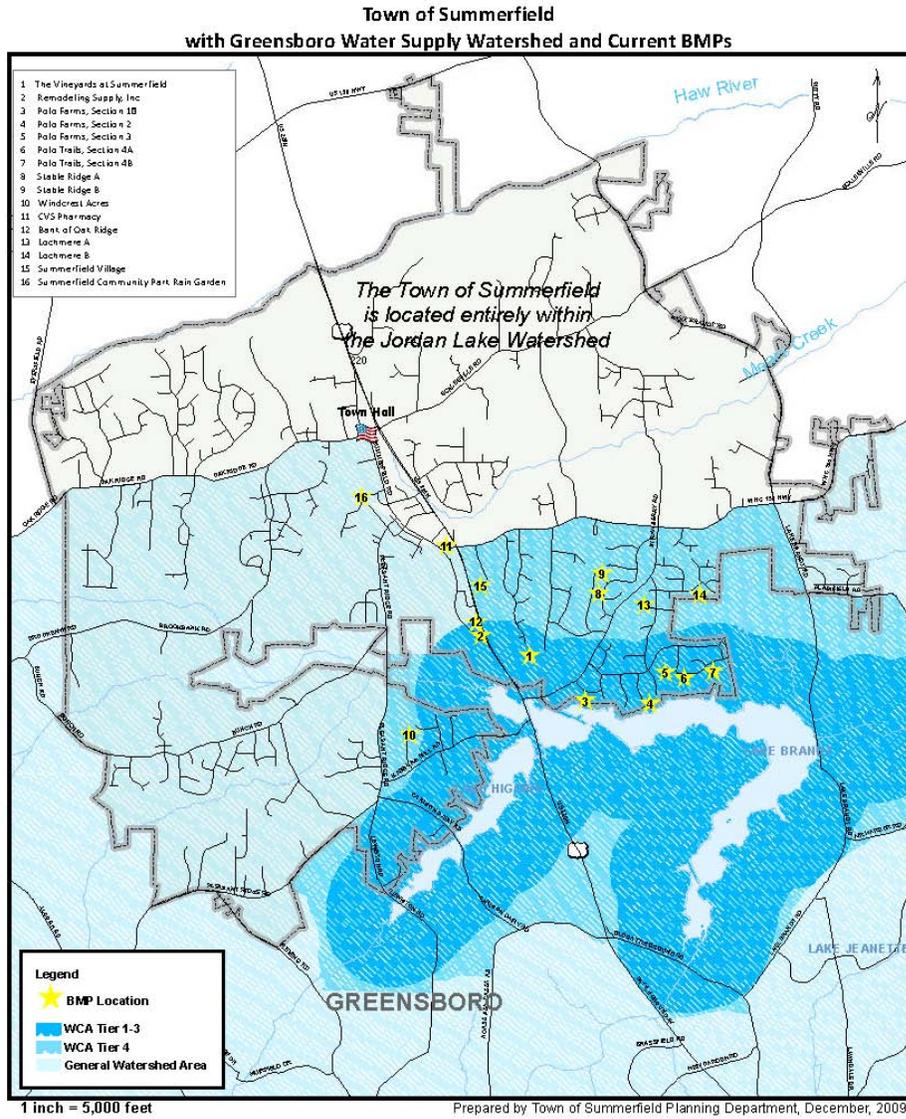
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FAX (336) 643-8654

Warren Simmons, PE, PLS, CFM

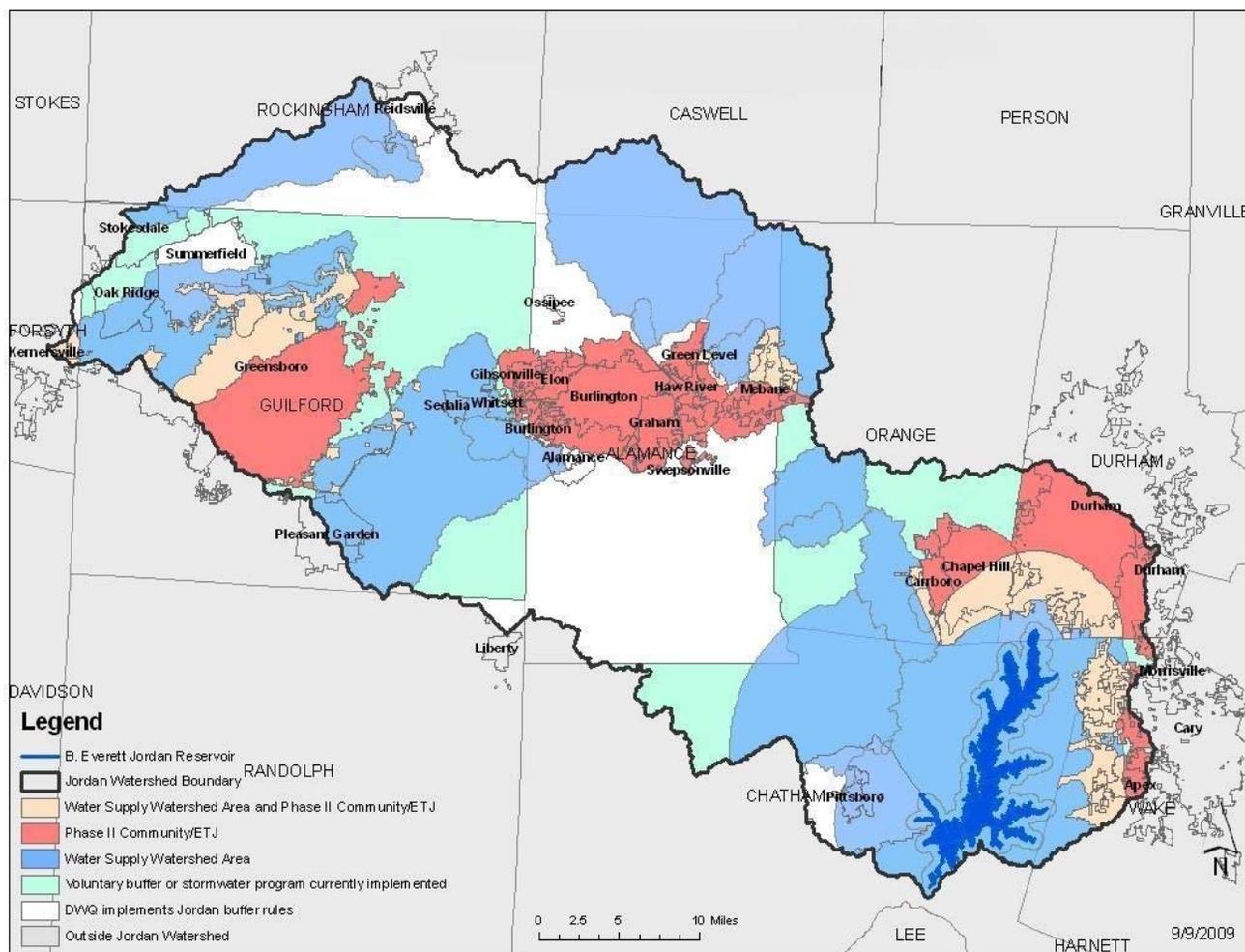
Anderson and Associates, Inc.  
406 Gallimore Dairy Road  
Greensboro, NC 27409  
(336) 931-0910  
FAX (336) 931-0990

Appendix B, Map 1

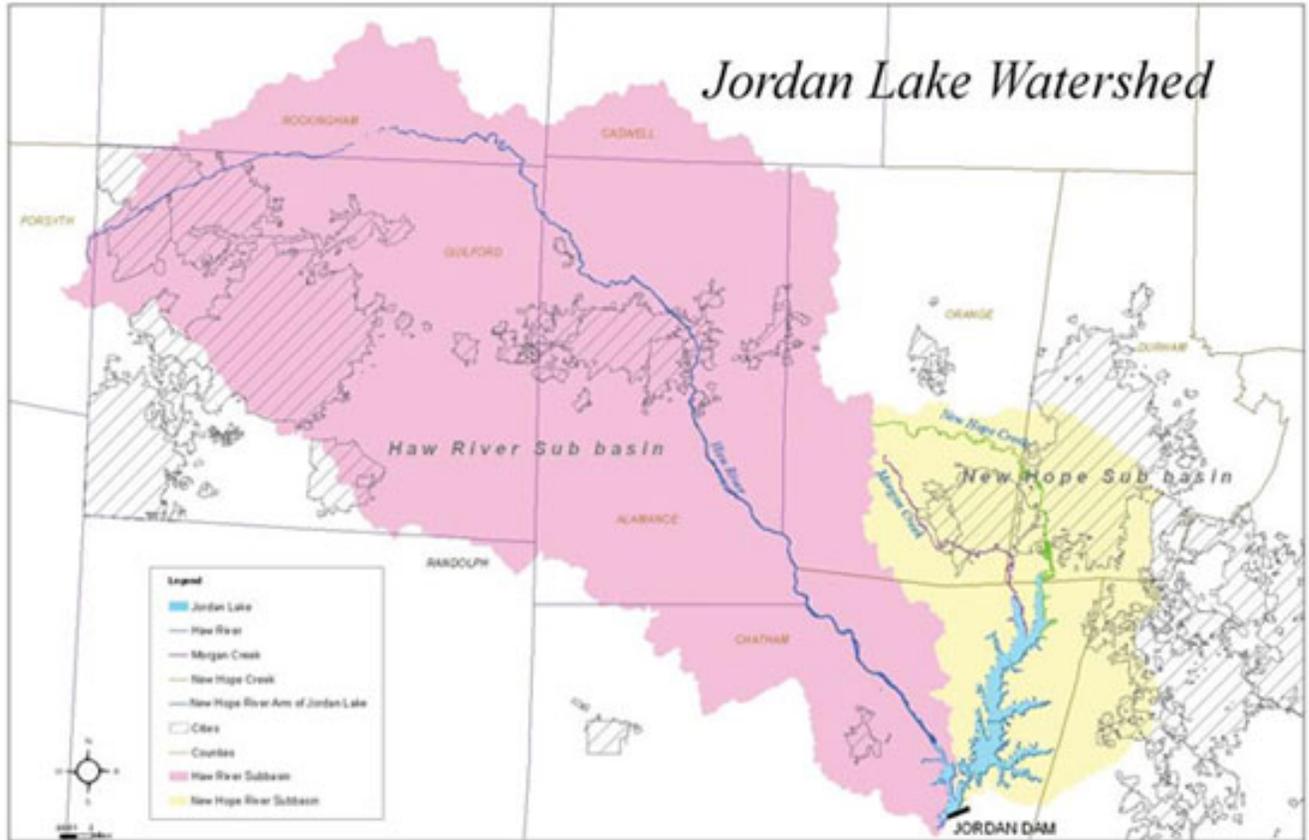
Location Map



Map 2, Jordan Lake Watershed Jurisdictional Map



Map 3, The Jordan Lake Watershed, North Carolina



**Town of Summerfield**  
**WATERSHED PROTECTION INSPECTION REPORT**  
 Inspection Date: \_\_\_\_\_

The Town of Summerfield Development Ordinance requires that runoff control structures be inspected annually to insure they are being maintained and are functioning as originally designed.

**A. General Information:**

Project Name: _____	Owner/Contact Name: _____
Location: _____	Owner/Contact Address: _____
Index No.: _____	_____
Water Supply Watershed: _____	Receiving Stream: _____

**B. The following stormwater runoff controls are found at this project site:**

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Wet Detention Pond      | <input type="checkbox"/> Sand Filters       | <input type="checkbox"/> Extended Dry Detention | <input type="checkbox"/> Infiltration Devices      |
| <input type="checkbox"/> Extended Detention Pond | <input type="checkbox"/> Bio-retention Area | <input type="checkbox"/> Filter Strips          | <input type="checkbox"/> Stream Buffers: _____ ft. |
| <input type="checkbox"/> Grassed Swales          | <input type="checkbox"/> Pocket Wetlands    | <input type="checkbox"/> Other: _____           |  |

**C. THE RESULTS OF THIS YEAR'S INSPECTION ARE AS FOLLOWS:**

- VISUAL INSPECTION FOUND NO APPARENT PROBLEMS.
- COMPLETE THE REPAIR AND/OR MAINTENANCE ITEMS INDICATED BELOW WITHIN 90 DAYS OF THIS REPORT:

**D. Repair and/or Maintenance Items to be Completed Within 90 Days:**

<b>Ponds/Basins:</b>	
<p><b>DAM TOP &amp; SLOPES / FACES</b></p> <input type="checkbox"/> Remove trash & high bushes. <input type="checkbox"/> Repair (applicable problems circled): <i>holes, slides, depressions, cracks.</i> <input type="checkbox"/> Evidence of (applicable problems circled): <i>seepage, overtopping.</i> <input type="checkbox"/> Repair eroded areas. <input type="checkbox"/> Seed bare areas. <p><b>EMERGENCY SPILLWAY</b></p> <input type="checkbox"/> Remove trees and high bushes. <input type="checkbox"/> Repair eroded areas. <input type="checkbox"/> Seed bare areas. <input type="checkbox"/> Repair displaced rip-rap. <input type="checkbox"/> Remove obstructions from spillway. <input type="checkbox"/> Enlarge spillway to adequate capacity. <p><b>Other Controls:</b></p> <input type="checkbox"/> Restore sheet flow <input type="checkbox"/> Remove debris/trash <input type="checkbox"/> Restore vegetation <input type="checkbox"/> Other: _____ Location: _____	<p><b>PRINCIPAL &amp; WQ SPILLWAYS</b></p> <input type="checkbox"/> Clear obstructed water quality hole or riser. <input type="checkbox"/> Repair riser/barrel (applicable problems circled): <i>leaking, cracked, deteriorated, collapsed, damaged.</i> <input type="checkbox"/> Repair concrete spillway (applicable problems circled): <i>leaking, cracked, deteriorated, spalling, damaged.</i> <input type="checkbox"/> Outlet end of barrel is eroded or blocked. <input type="checkbox"/> Filter rock is clogged. <p><b>IMPOUNDMENT</b></p> <input type="checkbox"/> Repair eroded inlet channel and/or drains. <input type="checkbox"/> Repair eroded slopes. <input type="checkbox"/> Clean sediment from forebay area. <input type="checkbox"/> Permanent pool less than 3 feet. Perform pond volume check. <input type="checkbox"/> Clean clogged filter surface. <p><b>OTHER:</b> _____</p>

**E. Additional Comments/Recommendations:**

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Please notify us when work is complete or if you have questions. Inspection by: \_\_\_\_\_

**Bioretention Area**  
**Record of Construction**  
**Engineer's Statement of Completion**

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

	<u>Description</u>	<u>Design</u>	<u>As-built</u>
1.	Surface area		
2.	Elevations of the following:		
a.	Bottom of planting soil		
b.	Top of planting soil		
c.	Top of mulch layer		
3.	Emergency spillway or top of berm – base width and elevation		
4.	Ponding depth ( 3 - 2c )		
5.	Runoff volume captured ( 1 x 4 )		
6.	Underdrain system:		
a.	Size and type of material		
b.	Number of lines		
c.	Invert elevation of underdrain		
d.	Invert elevation of outflow pipe at outlet		
7.	Planting soil (attach soil test reports)		
a.	Depth ( 2b - 2a )		
b.	Percentage clay		
c.	Percentage silt		
d.	Percentage sand		
e.	Percentage of organic material		
f.	pH		
8.	Plants:		
a.	Number of trees		
b.	Number of shrubs		
c.	Groundcover (if applicable)		

**ENGINEER'S STATEMENT OF COMPLETION**

I state to the best of my knowledge and belief that the permanent runoff control structure for \_\_\_\_\_ is duly recorded in the Office of the Guilford County Register of Deeds and has been completed in conformance with the approved plans and specifications dated \_\_\_\_\_.

*(name of plat)* *(approval date)*

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

( P.E. SEAL )

PROJECT: \_\_\_\_\_

DATE: \_\_\_\_\_

## BIORETENTION AREA CONSTRUCTION PLAN CHECKLIST

GENERAL INFORMATION:

- \_\_\_\_\_ BIO-CELL LOCATION
- \_\_\_\_\_ EX. & PROP. TOPOGRAPHY
- \_\_\_\_\_ ACCESS & MAINTENANCE EASEMENT
- \_\_\_\_\_ VICINITY MAP
- \_\_\_\_\_ NORTH ARROW & GRAPHIC SCALE
- \_\_\_\_\_ PE SEAL & SIGNATURE

- \_\_\_\_\_ COORD. WITH CITY REQUIREMENTS
- \_\_\_\_\_ UTILITY CONFLICTS
- \_\_\_\_\_ 100 YR. FLOODPLAIN
- \_\_\_\_\_ LABEL CELL "PERMANENT BIORETENTION AREA"
- \_\_\_\_\_ CERTIFICATION OF RUNOFF CONTROL
- \_\_\_\_\_ ENGINEER - NAME, ADDRESS, TELEPHONE
- \_\_\_\_\_ OWNER - NAME, ADDRESS, TELEPHONE

CELL DESIGN:

- \_\_\_\_\_ DRAINAGE AREA < 5 ACRES
- \_\_\_\_\_ LAYOUT DIMENSIONS
- \_\_\_\_\_ CROSS SECTION
- \_\_\_\_\_ SURFACE AREA
- \_\_\_\_\_ PONDING DEPTH (6" MAXIMUM)
- \_\_\_\_\_ RUNOFF VOLUME CAPTURED
- \_\_\_\_\_ HARDWOOD MULCH (2"-3", SHREDDED, AGED)
- \_\_\_\_\_ WATER TABLE 2' BELOW BOTTOM OF CELL
- \_\_\_\_\_ DIVERSION DITCHES

- \_\_\_\_\_ INLET PROTECTION
- \_\_\_\_\_ BYPASS OUTLET
- \_\_\_\_\_ OUTLET PROTECTION
- \_\_\_\_\_ SLOPE ON EMBANKMENT (3:1 MIN.)
- \_\_\_\_\_ 10' BENCH FOR MAINT. AROUND FILTER
- \_\_\_\_\_ UNDERDRAIN SYSTEM (SIZE & TYPE OF MATERIAL)
- \_\_\_\_\_ NUMBER OF UNDERDRAIN LINES
- \_\_\_\_\_ GRAVEL ENVELOPE 2" OVER UNDERDRAIN

PLANTS:

- \_\_\_\_\_ HERBACIOUS GROUND COVER
- \_\_\_\_\_ TREE DENSITY (100 TREES PER ACRE)
- \_\_\_\_\_ SHRUB DENSITY (300 SHRUBS PER ACRE)
- \_\_\_\_\_ SIZE REQUIREMENTS MET
- \_\_\_\_\_ PLANT SPECIES

PLANTING SOIL:

- \_\_\_\_\_ DEPTH
- \_\_\_\_\_ CLAY ( 15% MAXIMUM)
- \_\_\_\_\_ SILT (25% MAXIMUM)
- \_\_\_\_\_ SAND (65% - 75%)
- \_\_\_\_\_ ORGANIC MATERIAL (0 - 10%)
- \_\_\_\_\_ Ph (5.5 - 6.5)

NOTES:

- \_\_\_\_\_ POND MAINTENANCE RESPONSIBILITY
- \_\_\_\_\_ PRECONSTRUCTION MEETING
- \_\_\_\_\_ FULL DESIGN VOLUME

- \_\_\_\_\_ PE CERTIFICATION OF COMPLETION
- \_\_\_\_\_ RIGHT OF ACCESS FOR INSPECTION

OTHER:

- \_\_\_\_\_ OPERATION & MAINTENANCE MANUAL
- \_\_\_\_\_ SPECIFICATIONS

- \_\_\_\_\_ OTHER PERMITS (WETLAND, FLOODPLAIN, DAM SAFETY)

COMMENTS:

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**Wet Detention Pond**  
Record of Construction  
Engineer's Statement of Completion

Project: \_\_\_\_\_

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

	<u>Description</u>	<u>Design</u>		<u>As-built</u>	
1	Slope of embankments (3:1)				
2	Elevations on the following:				
a	Bottom of pond				
b	Bottom of riser				
c	Top of riser				
d	Water quality hole				
e	Invert of inflow and outflow pipes				
3	Top of dam: Elevation and width				
4	Width of maintenance benches				
5	Anti-seep collars - size				
6	Size and material of riser/barrel				
7	Verification of volume:				
a	Permanent Sediment Storage (CF)				
b	Permanent Water Quality (SF)				
c	Temporary Water Quality (CF)				
8	Baffle location and top elevation				
9	Emergency Spillway - Width and Elevation				
10	Waterstops installed (if applicable)				
11	Reinforcing according to plan (if applicable)				
12	Size of footing (if applicable)				

**ENGINEER'S STATEMENT OF COMPLETION**

I state to the best of my knowledge and belief that the permanent runoff control structure for \_\_\_\_\_ is duly recorded in the Office of the Guilford County Register of Deeds and has been completed in conformance with the approved plans and specifications dated \_\_\_\_\_.

*(name of plat)* *(approval date)*

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

( P.E. SEAL )

PROJECT: \_\_\_\_\_

DATE: \_\_\_\_\_

## WET DETENTION POND CONSTRUCTION PLAN CHECKLIST

### GENERAL INFORMATION:

\_\_\_\_ POND LOCATION  
\_\_\_\_ EX. & PROP. TOPOGRAPHY  
\_\_\_\_ ACCESS & MAINTENANCE EASEMENT  
\_\_\_\_ VICINITY MAP  
\_\_\_\_ NORTH ARROW & GRAPHIC SCALE  
\_\_\_\_ PE SEAL & SIGNATURE

\_\_\_\_ COORD. WITH CITY REQUIREMENTS  
\_\_\_\_ UTILITY CONFLICTS  
\_\_\_\_ 100 YR. FLOODPLAIN  
\_\_\_\_ POND LABEL  
\_\_\_\_ CERTIFICATION OF RUNOFF CONTROL  
\_\_\_\_ ENGINEER - NAME, ADDRESS, TELEPHONE  
\_\_\_\_ OWNER - NAME, ADDRESS, TELEPHONE

### POND DESIGN:

\_\_\_\_ LAYOUT DIMENSIONS  
\_\_\_\_ CROSS SECTION  
\_\_\_\_ SEDIMENT STORAGE  
\_\_\_\_ PERMANENT WATER QUALITY  
\_\_\_\_ TEMPORARY WATER QUALITY  
\_\_\_\_ PRINCIPAL SPILLWAY  
\_\_\_\_ EMERGENCY SPILLWAY  
\_\_\_\_ INLET & OUTLET VELOCITY PADS  
\_\_\_\_ FLOTATION OF RISER  
\_\_\_\_ RIP-RAP BAFFLE  
\_\_\_\_ POND DRAIN W/ HANDLE  
\_\_\_\_ 50' SEPARATION FROM WELL  
\_\_\_\_ 50' SEPARATION FROM SEPTIC

\_\_\_\_ TRASH RACK  
\_\_\_\_ W. Q. RELEASE HOLE  
\_\_\_\_ TRASH GUARD FOR WQ HOLE  
\_\_\_\_ ANTISEEP COLLAR (BAR. DIA. + 4 FT.)  
\_\_\_\_ COLLAR LOCATED DOWNSTR. OF DAM CL  
\_\_\_\_ FLANGE JOINTS W/ GASKET(CAP) OR O-RING(RCP)  
\_\_\_\_ CUT-OFF TRENCH (4' WIDTH)  
\_\_\_\_ CL OF TRENCH @ CL OF DAM  
\_\_\_\_ SLOPE ON EMBANKMENT (3:1 MIN.)  
\_\_\_\_ 10' BENCH FOR MAINT. AROUND POND

### CONCRETE CONSTRUCTION:

\_\_\_\_ THICKNESS OF SLAB OR WALL  
\_\_\_\_ REINFORCING  
\_\_\_\_ STRENGTH OF CONCRETE  
\_\_\_\_ WATERSTOPS  
\_\_\_\_ JOINT SPACING

### NOTES:

\_\_\_\_ POND MAINTENANCE RESPONSIBILITY  
\_\_\_\_ PRECONSTRUCTION MEETING  
\_\_\_\_ FULL DESIGN VOLUME

\_\_\_\_ PE CERTIFICATION OF COMPLETION  
\_\_\_\_ RIGHT OF ACCESS FOR INSPECTION

### OTHER:

\_\_\_\_ OPERATION & MAINTENANCE MANUAL  
\_\_\_\_ OTHER PERMITS (WETLAND, FLOODPLAIN,  
DAM SAFETY)

\_\_\_\_ SPECIFICATIONS

### COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Sand Filter**  
 Record of Construction  
 Engineer's Statement of Completion

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

	<u>Description</u>	<u>Design</u>	<u>As-built</u>
1	Sediment Chamber:		
a	Bottom Elevation		
b	Depth of Chamber		
c	Surface Area		
d	Volume		
2	Weir Elevation		
3	Sand Chamber:		
a	Top of Sand Elevation		
b	Depth of Sand		
c	Surface Area		
d	Volume		
e	Sand Particle Size		
4	Underdrain System:		
a	Size and type of perforated pipe		
b	Number of lines		
c	Invert elevation of underdrain		
d	Invert elevation of outflow pipe at outlet		
5	Dissipator Pad, Length and Width		

**ENGINEER'S STATEMENT OF COMPLETION**

I state to the best of my knowledge and belief that the permanent runoff control structure for \_\_\_\_\_ is duly recorded in the Office of the Guilford County Register of Deeds and has been completed in conformance with the approved plans and specifications dated \_\_\_\_\_.

(name of plat) (approval date)

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

( P.E. SEAL )

PROJECT: \_\_\_\_\_

DATE: \_\_\_\_\_

## SAND FILTER CONSTRUCTION PLAN CHECKLIST

GENERAL INFORMATION:

- \_\_\_\_\_ FILTER LOCATION
- \_\_\_\_\_ EX. & PROP. TOPOGRAPHY
- \_\_\_\_\_ ACCESS & MAINTENANCE EASEMENT
- \_\_\_\_\_ VICINITY MAP
- \_\_\_\_\_ NORTH ARROW & GRAPHIC SCALE
- \_\_\_\_\_ PE SEAL & SIGNATURE

- \_\_\_\_\_ COORD. WITH CITY REQUIREMENTS
- \_\_\_\_\_ UTILITY CONFLICTS
- \_\_\_\_\_ 100 YR. FLOODPLAIN
- \_\_\_\_\_ FILTER LABEL
- \_\_\_\_\_ CERTIFICATION OF RUNOFF CONTROL
- \_\_\_\_\_ ENGINEER - NAME, ADDRESS, TELEPHONE
- \_\_\_\_\_ OWNER - NAME, ADDRESS, TELEPHONE

FILTER DESIGN:

- \_\_\_\_\_ DRAINAGE AREA < 5AC.
- \_\_\_\_\_ LAYOUT DIMENSIONS
- \_\_\_\_\_ CROSS SECTION
- \_\_\_\_\_ SEDIMENT CHAMBER VOLUME
- \_\_\_\_\_ SEDIMENT CHAMBER SURFACE AREA
- \_\_\_\_\_ SEDIMENT CHAMBER DEPTH
- \_\_\_\_\_ SAND CHAMBER VOLUME
- \_\_\_\_\_ SAND CHAMBER SURFACE AREA
- \_\_\_\_\_ SAND CHAMBER DEPTH
- \_\_\_\_\_
- \_\_\_\_\_

- \_\_\_\_\_ UNDERDRAIN LINE W/ SOCK OR GRAVEL JACKET
- \_\_\_\_\_ 6" MAX. UNDERDRAIN
- \_\_\_\_\_ MIN. 12" SAND OVER UNDERDRAIN
- \_\_\_\_\_ DIVERSION DITCHES NEEDED
- \_\_\_\_\_ TOP OF SAND 2" - 6" BELOW WEIR
- \_\_\_\_\_ SLOPE ON EMBANKMENT (3:1 MIN.)
- \_\_\_\_\_ 10' BENCH FOR MAINT. AROUND FILTER
- \_\_\_\_\_ INLET PROTECTION

CONCRETE CONSTRUCTION:

- \_\_\_\_\_ THICKNESS OF SLAB OR WALL
- \_\_\_\_\_ REINFORCING
- \_\_\_\_\_ STRENGTH OF CONCRETE
- \_\_\_\_\_ WATERSTOPS
- \_\_\_\_\_ JOINT SPACING

NOTES:

- \_\_\_\_\_ SAND FILTER MAINTENANCE RESPONSIBILITY
- \_\_\_\_\_ PRECONSTRUCTION MEETING
- \_\_\_\_\_ FULL DESIGN VOLUME

- \_\_\_\_\_ PE CERTIFICATION OF COMPLETION
- \_\_\_\_\_ RIGHT OF ACCESS FOR INSPECTION

OTHER:

- \_\_\_\_\_ OPERATION & MAINTENANCE MANUAL
- \_\_\_\_\_ OTHER PERMITS (WETLAND, FLOODPLAIN,  
DAM SAFETY)

- \_\_\_\_\_ SPECIFICATIONS

COMMENTS:

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**Extended Detention Wetland**  
Record of Construction  
Engineer's Statement of Completion

Project: \_\_\_\_\_

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

	<b>Description</b>	<b>Design</b>		<b>As-built</b>	
1	Slope of embankments (3:1)				
2	Elevations on the following:				
a	Bottom of pond				
b	Bottom of riser				
c	Top of riser				
d	Water quality hole				
e	Invert of inflow and outflow pipes				
3	Top of dam: Elevation and width				
4	Width of maintenance benches				
5	Anti-seep collars - size				
6	Size and material of riser/barrel				
7	Verification of volume:				
a	Permanent Sediment Storage (CF)				
b	Permanent Water Quality (SF)				
b(i)	Perm. Pool 0" – 18" (Surf. Area)				
b(ii)	Perm. Pool 0" – 9" (Surf. Area)				
b(iii)	Perm. Pool 9" – 18" (Surf. Area)				
c	Temporary Water Quality (CF)				
8	Pool @ Principal Spillway				
9	Micropool (SF)				
10	Emergency Spillway - Width and Elevation				

**ENGINEER'S STATEMENT OF COMPLETION**

I state to the best of my knowledge and belief that the permanent runoff control structure for \_\_\_\_\_ is duly recorded in the Office of the Guilford County Register of Deeds and has  
*(name of plat)*  
 been completed in conformance with the approved plans and specifications dated \_\_\_\_\_.  
*(approval date)*

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

( P.E. SEAL )

PROJECT: \_\_\_\_\_

DATE: \_\_\_\_\_

## EXTENDED DETENTION WETLAND CONSTRUCTION PLAN CHECKLIST

GENERAL INFORMATION:

- \_\_\_\_\_ WETLAND LOCATION
- \_\_\_\_\_ EX. & PROP. TOPOGRAPHY
- \_\_\_\_\_ ACCESS & MAINTENANCE EASEMENT
- \_\_\_\_\_ VICINITY MAP
- \_\_\_\_\_ NORTH ARROW & GRAPHIC SCALE
- \_\_\_\_\_ PE SEAL & SIGNATURE

- \_\_\_\_\_ COORD. WITH CITY REQUIREMENTS
- \_\_\_\_\_ UTILITY CONFLICTS
- \_\_\_\_\_ 100 YR. FLOODPLAIN
- \_\_\_\_\_ LABEL AS PERM. EXTENDED DETENTION WETLAND
- \_\_\_\_\_ CERTIFICATION OF RUNOFF CONTROL
- \_\_\_\_\_ ENGINEER - NAME, ADDRESS, TELEPHONE
- \_\_\_\_\_ OWNER - NAME, ADDRESS, TELEPHONE

POND DESIGN:

- \_\_\_\_\_ LAYOUT DIMENSIONS
- \_\_\_\_\_ DRAINAGE AREA > 10 ACRES
- \_\_\_\_\_ CROSS SECTION
- \_\_\_\_\_ SEDIMENT STORAGE (FOREBAY)
- \_\_\_\_\_ PERMANENT WATER QUALITY (3' PRM. POOL)
- \_\_\_\_\_ PERM. POOL 0" - 18" (70% SA)
- \_\_\_\_\_ PERM. POOL 0" - 9" (35% SA)
- \_\_\_\_\_ PERM. POOL 9" - 18" (35% SA)
- \_\_\_\_\_ TEMPORARY WATER QUALITY
- \_\_\_\_\_ PRINCIPAL SPILLWAY
- \_\_\_\_\_ EMERGENCY SPILLWAY
- \_\_\_\_\_ INLET & OUTLET VELOCITY PADS
- \_\_\_\_\_ FLOTATION OF RISER
- \_\_\_\_\_ MICROPOOL (15% SURFACE AREA)
- \_\_\_\_\_ POND DRAIN W/ HANDLE

- \_\_\_\_\_ TRASH RACK
- \_\_\_\_\_ W. Q. RELEASE HOLE
- \_\_\_\_\_ TRASH GUARD FOR WQ HOLE
- \_\_\_\_\_ ANTISEEP COLLAR (BAR. DIA. + 4 FT.)
- \_\_\_\_\_ COL. LOCATED DOWNSTR. OF DAM CL
- \_\_\_\_\_ FLANGE JOINTS W/ GASKET(CAP) OR O-RING(RCP)
- \_\_\_\_\_ CUT-OFF TRENCH (4' WIDTH)
- \_\_\_\_\_ CL OF TRENCH @ CL OF DAM
- \_\_\_\_\_ SLOPE ON EMBANKMENT (3:1 MIN.)
- \_\_\_\_\_ 10' BENCH FOR MAINT. AROUND POND
- \_\_\_\_\_ PLANTING PLAN & SCHEDULE
- \_\_\_\_\_ POND BUFFER > 30'
- \_\_\_\_\_ 50' SEPARATION FROM WELL
- \_\_\_\_\_ 50' SEPARATION FROM SEPTIC FIELD

NOTES:

- \_\_\_\_\_ POND MAINTENANCE RESPONSIBILITY
- \_\_\_\_\_ PRECONSTRUCTION MEETING
- \_\_\_\_\_ FULL DESIGN VOLUME

- \_\_\_\_\_ PE CERTIFICATION OF COMPLETION
- \_\_\_\_\_ RIGHT OF ACCESS FOR INSPECTION

OTHER:

- \_\_\_\_\_ OPERATION & MAINTENANCE MANUAL
- \_\_\_\_\_ OTHER PERMITS (WETLAND, FLOODPLAIN,  
DAM SAFETY)

- \_\_\_\_\_ SPECIFICATIONS

COMMENTS:

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