


MEMORANDUM

TO: Roger Waldon, Planning Director

FROM: Engineering Department

SUBJECT: Comments of the 2nd Draft Development Ordinance

DATE: November 8, 2001

The following items are comments and suggested language provided by the Engineering Department for consideration in revising the Draft Development Ordinance:

Subsection 2.4.10, Transportation

Table 2.4-4 (Street cross-sections)

*Revise the Alley cross-section standards to call for minimum R.O.W. width of **20 feet** and minimum pavement width of **16 feet**. Revise curb radii standards to call for minimum curb radii of **10 feet** for all street types.*

Section 2.5, New Development in Older Areas, Purpose Statement

(General Comment)

This section does not seem to address older, single family subdivisions, where it is evident that newer and much larger homes could be constructed in areas that have an established character with existing homes. We think that an explicit statement and/or measures addressing this potential problem would be appropriate.

Subsection 3.6.3 Resource Conservation District

Insert the following into the first sentence of the introductory paragraph following the word watercourses; “and other applicable surface water features such as wetlands, lakes and ponds”.

Subsection 3.6.3-b-4 Rewrite heading to read; Delineation of Perennial Streams, Surface Water Features or Wetlands

Replace text with the following: “Perennial Streams, surface water features or wetlands are those areas shown or described on the Town’s Aerial Topographic Maps, the Orange County Soil Survey, and/or USGS Quadrangle Maps in addition to streams, surface water features or wetlands confirmed to be perennial after field inspection by the Town Engineering Department and identified as Resource Conservation District areas in accordance with this Ordinance. Field confirmation shall be established by the presence of two or more of the following:”

Subsection 3.6.3-b-4-A (OK as is)

Subsection 3.6.3-b-4-B Rewrite to read; “Aquatic and/or facultative vegetation;”

3.6.3-b-4-C Rewrite to read; “aquatic criniate vertebrates (fish), and/or aquatic arthropods having a chitinous (or calcareous and chitinous) exoskeleton (crayfish), and/or other benthic macroinvertebrates common to the piedmont of North Carolina as primary indicators of a perennial stream, and/or designation by the North Carolina Environmental Management Commission.”

Table 3.6.3.2 Permitted Uses within Resource Conservation District

Revise table as follows:

Use	streamside	managed use	upland zone
Pasture, outdoor plant nursery...			“N”

Add the following as notes after Table 3.6.3.2;

“Note: The intent of the 30 foot streamside buffer is to maintain and/or restore this critical zone with native vegetation, and allow surface runoff to sheet flow through this area prior to entering surface water features. Wherever trails or other forms of disturbance are approved by the Town, this disturbance shall be located as far from the water feature as practicable, and landscaping and maintenance activities shall be designed and implemented to mimic natural processes in a riparian area.”

“Note: For ponds, lakes, wetlands or other surface water features identified as Resource Conservation Districts under this Ordinance, the buffer management criteria shall be the same as a perennial stream draining less than one square mile.”

Section 5.4, Stormwater Management

Purpose Statement:

First paragraph, last sentence, should be changed to read; “The adverse effects of increased and otherwise altered stormwater runoff can be controlled and minimized through the regulation of stormwater runoff from development sites.”

Second paragraph, first sentence, add; “...reasonable guidance regarding the regulation of stormwater for the purpose of protecting local water resources from degradation and affected property from flood damages.”

Subsection 5.4.1, Purpose

First paragraph, first sentence should read; “...to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction and to protect and restore surface water quality and the natural environment within these watersheds.”

(a) *Rewrite to read;* “control post-development peak discharge rates from any development in order to reduce flooding, scour and erosion and to maintain the integrity to the natural or man-made receiving conveyance systems.”

(b) *(OK as is)*

(c) *Rewrite to read;* “minimize the volume of surface water runoff which flows from any specific development site so as not to exceed the pre-development volume, to the maximum extent practicable;”

(d) *Rewrite to read;* “Manage runoff velocities from developed sites to ensure that only non-erosive flows enter receiving systems, and provide protection and energy dissipation where necessary;”

(e) *Rewrite to read:* “manage and treat stormwater runoff through approved structural best management practice design and construction, and operate and maintain these engineered facilities to meet local, state and federal regulatory mandates; and”

(f) *Add this section to read:* “meet or exceed the requirements of the National Pollutant Discharge Elimination System (NPDES) program as established by the Clean Water Act.”

Subsection 5.4.2, Applicability”For development less than 40,000 sf, post-construction runoff shall incorporate best management practices to provide water quality treatment as required by the Town.”

(a) *Insert after the word including;”individual projects disturbing less than 40,000 square feet that are part of a larger common plan of development, ownership, or sale”*

(b) *(leading text paragraph OK as is).*

(b1) *(OK as is)*

(b2) *(Eliminate existing #b2 text and substitute wording below.)*

(b2). *Rewrite to read:* “repairs, retrofits or maintenance to any engineered stormwater facility deemed necessary by the Town.”

(b3) *(Delete)*

Subsection 5.4.3, Design Manual and Standard Details

(Delete dangling participle (“which”) at end of first paragraph.)

Rewrite paragraph two to read:”The manual may be revised, at the discretion of the Town, based on improvements in engineering, science, monitoring, and local maintenance experience. All approved engineered stormwater management facilities will be designed, constructed and maintained to meet the minimum water quality treatment standards and/or the minimum release rate standards of the Town. By reference, the State of North Carolina’s Stormwater Best Management Practices Manual (latest) is deemed as an appropriate guidance tool in the selection of appropriate Best Management Practices. The design and performance standards of any facility must be approved by the Town.”

Subsection 5.4.4, Permit Procedures and Requirements

Insert directly below first paragraph
“Preliminary Submittal”

a) *(OK as is)*

Delete items b), c), d)

Insert after a);

“ZCP Submittal

A bound document entitled “Stormwater Management Plan”, containing a narrative and all required hydrologic and hydraulic tables, calculations, computer model printouts and all other materials relevant for a thorough engineering analysis. The document shall include a section entitled: “Operations and Maintenance” for all stormwater management engineered facilities and containing information of ownership, financial responsibility, maintenance schedule, operating plan, and related materials as may be required by the Town. A Performance Bond may be required, depending on the location and type of facility(ies) involved.”

Subsection 5.4.5, Waivers... (OK as is)

Subsection 5.4.6 *Rewrite heading to read; “Minimum Performance Standards for Stormwater Management”*

Rewrite first paragraph to read; ”The following minimum performance standards for stormwater management shall be met for all applicable development and re-development:”

Items a), b), and c) *(OK as written)*

Add item to read; “d) These minimum standards are subject to any applicable revision(s) to Federal, State or Local regulations.”

Subsection 5.4.7 *revise heading to read;* **“Best Management Practice Design Standards”**

(a) Minimum Control Requirements

Replace entire paragraph to read: “All stormwater management best management practices shall be designed so that the minimum performance standards listed in 5.4.6 and any additional design requirements listed in the Design Manual and Standard Details are met. In addition, if adverse hydrologic or hydraulic conditions warrant greater performance standards, the Town reserves the right to impose any and all additional design requirements deemed necessary to protect water quality and public health and safety.”

(b) Site Design Feasibility

Replace text and list to read; “Stormwater management best management practices for applicable development sites, either structural or non-structural, shall be chosen based on the physical characteristics of each site. Among the factors that should be considered are:- Type and density of development- Management considerations of off-site surface water- Site buffer requirements- Condition of downstream conveyance system- Topography-Drainage area –Depth to water table-Soil Type-Proximity to unique habitat or environmentally sensitive areas including the Resource Conservation District”

Applicants shall consult the Design Manual and Standard Details, the NCDENR Stormwater Management Best Management Practices Manual (latest) and/or similar guidelines for direction and design considerations concerning the feasibility of selected stormwater best management practices as related to specific development sites.”

Subsection 5.4.8 *Revise heading to read;* **“Stormwater Conveyance System Design Standards”**

Replace text and list to read:

“a) All conveyance systems such as pipes, open channels and gutters shall be designed to adequately convey stormwater while minimizing the risks of flooding, erosion and scour, and maximizing pollutant removal efficiencies. Methods to achieve this include, but are not limited to:

- Causing sheet flow to occur through vegetated areas
 - Maximizing length of flow through vegetated swales
 - Providing engineered inlet and outlet scour protection
 - Providing engineered energy dissipation at outlets

b) All on-site conveyance systems shall be designed and constructed to withstand the expected velocity of flow from storm events up to and including the 50-year, 24 hour duration event. The Design Manual and Standard Details provide specific design information and requirements for conveyance systems associated with roads, parking areas, etc.

c) All conveyance systems and engineered stormwater facilities shall be located within an easement entitled “Reserved Storm Drainageway Easement Hereby Dedicated” and shall be reserved from any development which could obstruct or constrict the effective conveyance and/or control of stormwater to, from or across the property, other than by the approved design and operation functions. (See Section 5.4.15 below)”

Subsection 5.4.9 *Revise heading to read: “Stormwater Treatment Standards”*

Delete the last three words and insert; “Design Manual and Standard Details.”

Subsection 5.4.10 *Revise heading to read: “Stormwater Management Planting Plan”*

Replace text to read; “All stormwater management best management practices shall include a planting plan detailing vegetation species, location, density or seeding rates. The ownership and financial responsibility for plantings and planted areas, and a management and maintenance plan and schedule, shall be detailed in an Operations and Maintenance Agreement document described in Subsection 5.4.11 below.

The applicant shall utilize the Design Manual and Standard Details, the NCDENR Stormwater Management Best Management Practices Manual (latest) or an approved plant species list for the plant selections.”

Subsection 5.4.11 **Maintenance Agreements**

(Text is OK as is)

Subsection 5.4.12 *Rewrite heading to read: “Non-structural Stormwater Management Best Management Practices”*

(Text is OK as is)

Subsection 5.4.13 Rewrite heading to read: “Requirements for Stormwater Management Plan”

(First paragraph is OK)

Replace second paragraph with the following “The plan shall be provided as a bound document entitled “Stormwater Management Plan”, containing a narrative and all required hydrologic and hydraulic tables, calculations, computer model printouts and all other materials relevant for a thorough engineering analysis. The document shall include a section entitled: “Operations and Maintenance” for all stormwater management engineered facilities and containing information of ownership, financial responsibility, maintenance schedule, operating plan, and related materials as may be required by the Town. A Performance Bond may be required, depending on the location and type of facility(ies) involved.”

Subsection 5.4.15 Rewrite heading to read: “Maintenance and Repair of Stormwater Management Facilities”

a) Rewrite heading to read: “Reserved Storm Drainageway Easement” (and add the following text)

- All engineered stormwater detention and treatment structures shall be located within an easement entitled: “Reserved Storm Drainageway Easement Hereby Dedicated” and shall be reserved from any development which could obstruct or constrict the effective conveyance and/or control of stormwater to, from or across the property, other than by the approved design and operation functions.
- Unless specifically designated as being "Public" the "Reserved Storm Drainageway Easement" and the facilities they protect will be considered to be private, with the sole responsibility of the owner of the underlying property to provide for all required maintenance and operations as approved by the Town Manager.

The minimum width of the Reserved Storm Drainageway Easement shall be 30 feet.

- Maintenance access to the Reserved Storm Drainageway Easement must be provided and shown on the plans.
- The Reserved Storm Drainageway Easement is required for all engineered stormwater structures above and below ground and typically for conveyance

systems such as pipes, streams or ditches if such systems convey, divert, or otherwise manage surface water flowing onto and/or across the development site from off-site areas.

- Internal collection and conveyance systems on private property, which deal only with internal stormwater runoff, typically will not require platted drainageway easements.
- Reserved Storm Drainageway Easements shall be identified on the approved development plans and shall be dedicated and recorded on the final plat.

b) Rewrite heading to read: "Operations and Maintenance Agreement"

(General Comment)

The concept of this text is generally OK, but the specific wording needs to be reviewed and approved by the Town Attorney. We have some concern about the final paragraph regarding Town acceptance of facilities. This should be considered carefully or deleted.

c) Rewrite heading to read: "Requirements for the Operations and Maintenance Agreement"

Replace first sentence with; "All stormwater management facilities must undergo, at the minimum, the prescribed inspection and maintenance as described in the approved Operations and Maintenance Agreement. Both scheduled and unscheduled inspections and maintenance are the responsibility of, and are to be performed and financed by, the responsible party as defined in the agreement."

d) Rewrite heading to read: "Inspection of Stormwater Management Facilities"

*Add third paragraph to read; "Unless otherwise explicitly agreed upon in writing, the responsibility for ongoing inspections and preparation of related reports concerning stormwater management facilities is that of the responsible party as **defined in the approved Operations and Maintenance Agreement for the facility(ies).**"*

(General Comment)

The wording in this section should be reviewed and approved by the Town Attorney.

e) Right-of-Entry for Inspection

(General Comment)

The wording in this section should be reviewed and approved by the Town Attorney.

f) Rewrite heading to read: “Records of Maintenance and Operations”

Replace text with the following; “The responsibility for preparation of records for all maintenance and repairs of stormwater management facilities covered by this Ordinance is that of the responsible party as defined in the approved Operations and Maintenance Agreement for the facilities. Records of maintenance and repairs shall be retained for at least five years, and shall be made available to the Town upon request and/or as specifically outlined in the Operations and Maintenance Agreement for the facilities.”

(General Comment)

The wording in this section should be reviewed and approved by the Town Attorney.

g) Rewrite heading to read; “Failure to Maintain Facilities”

(General Comment)

The concept of this text is generally OK, but the specific wording needs to be reviewed and approved by the Town Attorney.

Insert the following as an appendix to the Ordinance:

“Appendix B-12 Traffic Impact Analysis

The Town of Chapel Hill considers during its review process the traffic impacts of proposed new development and redevelopment. Therefore, the preparation of a Traffic Impact Analysis is typically required to identify and quantify the traffic impacts of proposed developments, and to identify facility improvements necessary to maintain acceptable levels of service. Under the following circumstances, a Traffic Impact Analysis is typically required:

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- A. Submittal of a development application requiring a change in zoning.
- B. Submittal of an application for a major subdivision, Special Use Permit, or site plan review.

The Town Council approved specific guidelines and requirements for conducting Traffic Impact Analyses associated with development applications within the planning jurisdiction of the Town. These guidelines and requirements are available in the Town Engineering Department.

The guidelines provide a standard process, set of assumptions, set of analytical techniques, and presentation format to be used in the preparation of all Traffic Impact Analyses. A set of criteria for waiving the Traffic Impact Analysis requirement is included in the guidelines. Traffic Impact Analyses will be prepared by consultants under contract with the Town, and the costs of the analyses will be included in the development application fees.