TOWN OF THOMPSON
Planning & Zoning Commission

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Minutes – PZC Subcommittee Meeting-Subdivision Regulations
Monday, August 16, 2021 at 7:00 PM
Zoom Meeting

Tyra Penn-Gesek is inviting you to a scheduled Zoom meeting.
Topic: PZC Subcommittee - Subdivision Regs
Time: Aug 16, 2021 07:00 PM Eastern Time (US and Canada)
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1. Call to Order, Roll Call
Joseph Parodi-Brown *Dave Poplawski* *John Lenky*
Absent: Missy Desrochers, Robert Werge Sr., Christopher Nelson, Charlene Langlois, Christine Chatelle, Randy Blackmer, John Rice, Alvan Hill, Michael Krogul, Brian Santos
Staff Present: Tyra Penn-Gesek, Planner, Gloria Harvey, Recording Secretary

2. Review and Discussion of Subdivision Regulations

Section 4 Stormwater Management and Low Impact Development

Commented [P1]: Based on Janet's recommendations: the stormwater/LID regs from the Zoning regulations are carried over here as a starting point. To be discussed in greater depth after the V1 draft is completed.

A. Intent

This section is intended to:

1. Minimize pollution from non-point source runoff
2. Mitigate impacts to the hydrologic system from development
3. Reduce or prevent flooding, stream channel erosion and/or other negative impacts created by stormwater runoff
4. Promote the application of Low Impact Development (LID) strategies

A. Stormwater Management Requirements

1. Subdivision applications shall include stormwater management provisions by using the best available technology to treat stormwater quality and control stormwater quantity prior to its discharge to any wetland, watercourse or existing stormwater drainage system. Acceptable principles, methods and practices are found in the **2004 Connecticut Stormwater Quality Manual (CSQM)**, published by **the Connecticut Department of Energy and Environmental Protection (CT DEEP)**, as amended.

2. Provisions for stormwater management shall be designed by a professional engineer licensed to practice in the state of Connecticut and shall include:
   a. Pollution reduction (see CSQM Section 7.4).
   b. Groundwater recharge and runoff volume reduction (see CSQM Section 7.5).
   c. Peak flow control (see CSQM Section 7.6) of the 10-, 25- and 100-year frequency storm events.

d. A description of any site design strategy that maintains, mimics or replicates pre-development hydrology through the use of various site design principles and small-scale treatment practices distributed throughout the site to manage runoff volume and water quality at the source.
e. Details on the operation and maintenance of structural components, such as detention basins and infiltration basins, proposed for stormwater management.
f. The retention of the water quality volume for the site, as defined in the CSQM, for new development and redevelopment of sites that are currently developed with a DCIA of less than 40%.
g. A report signed by the professional engineer containing the design calculations produced to support the function of the stormwater management design features.

3. The Commission may modify the requirements of stormwater management based on a report by a professional engineer, identifying the limiting factors that warrant such a modification.

B. Stormwater System Design and Calculations

General

All stormwater systems must be designed by a professional engineer licensed in the State of Connecticut with plans and accompanying engineering report signed and sealed by said professional engineer. Computations and design storm criteria shall be in accordance with the latest edition of the ConnDOT

Janet Blanchette stated that this was a copy from the Zoning Regulations, therefore there were not many changes

1. Drainage Manual. Stormwater systems shall be designed using LID principles to the greatest extent possible. Applications for **subdivisions of 4 or more lots or one or subdivision proposing one or more shared driveways** submit the LID checklist, found in **Appendix B**, with their application. The Commission encourages the use of onsite natural filtration functions as part of currently accepted Best Management Practices in the reduction of sediment and pollutants.
2. ***Objectives***

   Stormwater systems shall be designed for the following objectives:
   a. Prevent flooding of on-site or off-site property
   b. Recharge inland wetlands, surface and subsurface waters
   c. Minimize pollutant load in stormwater runoff into inland wetlands, surface and subsurface waters
   d. Maintain the hydrology of existing sub-watersheds, including wetlands and watercourses
3. ***Design Storm Criteria***

   All stormwater drainage facilities shall be designed based on the following storm return frequency criteria, as per the *ConnDOT Drainage Manual*:
   a. Curb inlet/storm drainage system and channels/ditches: 10 years
   b. Watercourse channels: 50 years
   c. Culverts:
      - Watershed Area < 1 square mile: 50 years
      - Watershed Area > 1 square mile: 100 years
4. ***Submission of Stormwater Drainage information***

   In addition to the details shown on the site plan, the following data shall be submitted in a report signed and sealed by a professional engineer licensed to practice in the State of Connecticut for review by the Commission:
   b. Topography contour map(s) with sufficient detail to adequately show the existing and proposed drainage characteristics of the watershed and drainage area(s) shall be delineated on the map(s).
   c. Narrative and calculations addressing at least the following:
      i. Method used to calculate stormwater runoff.
      ii. Stormwater runoff characteristics of the property before and after development.
      iii. Maximum velocity and peak flow at point(s) of discharge from the system.

iv. Design calculations for all drainage piping, structures and appurtenances.
v. Calculations addressing the adequacy of off-site drainage features, as applicable.

5. ***Pipe***

All pipe for storm drains shall conform to ConnDOT standards and shall be approved for use by the Commission. The minimum pipe size shall be 12 inches. In the event that groundwater or wet conditions are encountered during construction, slotted pipe may be required by the Commission.

6. ***Minimum Pipe Slope***

All stormwater piping shall be designed to provide a self-cleansing velocity of at least 2.5 feet per second when flowing full. Generally, stormwater piping shall have a minimum pitch of 0.5%. Lesser pitch may be approved by the Commission, provided the self-cleansing velocity is maintained.

7. ***Pipe Cover***

The minimum clear cover over all pipes shall be 2.5 feet.

8. ***Outlet Structures***

All storm drain systems shall be terminated with a flared end section or other approved structure. Special energy dissipaters may be required to prevent erosion.

9. ***Underdrains***

The Commission may require underdrains to be installed where localized seeps, springs, or high groundwater less than three feet below the proposed grade of an access drive or other traveled way are observed. Underdrains shall not be less than six inches in diameter and shall be perforated PVC.

10. ***Stormwater Treatment***

The stormwater system shall include primary or secondary treatment practices, as described in the most recent edition of the *Connecticut Stormwater Quality Manual.*

Primary Practices include, but are not limited to, the following:

a. Stormwater ponds
b. Stormwater wetlands
c. Infiltration practices
d. Bioretention
e. Water quality swales

Secondary Practices include, but are not limited to, the following:

a. Dry detention basins
b. Hydrodynamic separators
c. Underground detention facilities
d. Grass drainage channels

D. Drainage to Off-Site Properties

1. No increase in stormwater peak flows or volume of run-off from 2-, 25-, and 100-year storms shall be allowed unless downstream increases are compatible with the overall downstream drainage system. The following items shall be investigated in determining whether increased peak flows or run-off volumes are compatible with the overall downstream drainage system:

    a. The timing of peak flows from sub-watersheds.
    b. The increased duration of high flow rates.
    c. The adequacy of downstream drainage features.
    d. The distance downstream that the peak discharges are increased.

2. When it is determined that stormwater detention structures are required, they shall be designed so that the peak flow(s) or volume of run-off after development shall not exceed nor be substantially less than the peak flow(s) or volume of run-off prior to development for each of the design storm events.

E. Stormwater Detention Structures

1. Stormwater detention structures, surface or subsurface, shall be designed as an integral part of the stormwater treatment system, as well as limiting peak discharge from the storm drainage system of the developed area where such discharge would adversely affect receiving streams and/or storm systems. The developer shall be responsible for establishing short- and long-term maintenance of detention structure(s) and appurtenances. In the event that the owner of the property fails to maintain such areas in reasonable order and safe condition, the Commission may serve written notice to such individual or association, setting forth the nature of the maintenance deficiency and requiring its correction within thirty (30) days, after which time, if the deficiency remains, the Town may assume maintenance to avoid the creation or promulgation of a public nuisance and shall assess the owner of such property for Town expenses incurred in the form of a lien on the property.
2. The following information, as a minimum, shall be submitted for detention structures:
   a. Inflow and outflow hydrographs for detention area.
   b. Maximum storage volume.
   c. Design of emergency spillway or other measures for the release of excess flows beyond that of the design capacity of the structure.
   d. Flood routing of all runoff greater than the design capacity of the detention structure.
   e. Time which is required for the structure to drain completely.

3. Storm Return Frequency

Stormwater detention structures shall be designed and stormwaters regulated for storm return frequencies of 2, 25, and 100 years.

4. Design Procedure

The procedure for computing the outflow from the detention areas shall consist of the development of an inflow hydrograph and the routing of the inflow through the detention basin to develop an outflow hydrograph.

5. Maintenance Roads

Maintenance roads and easements shall be provided for all detention facilities. The road shall be a minimum of 12 feet wide, capable of providing access for maintenance and emergency vehicles. Grades shall not exceed 10%.

6. Fire Protection

Where proposed detention basins involve permanently ponded water and where deemed practical by the Commission, access to storm detention basins should be provided for fire-fighting equipment. The addition of dry hydrants and related fire-fighting appurtenances with the detention basins shall be coordinated with the Fire Marshal.

F. Easements and Rights-To-Drain

1. General

All applications proposing easements as a part of the development shall submit properly executed written easements and deed describing the land involved and privileges of the Town and/or property owner(s) in a form eliminating any Town liability for installation and maintenance, satisfactory to the Town. Said easements shall be submitted to the Town for review by the Commission and by counsel before any approval shall be granted.

2. Easements Dedicated to the Town

Drainage easements for drainage systems located outside of the street right-of-way lines shall be a minimum of 20 feet wide centered on the pipe and shall be adequate to provide access and maintenance to all drainage features. Easements shall be provided for channels and shall be of minimum width to include a 10-foot access strip in addition to the width of the channel from top of bank to top of bank.

3. Easements Not Dedicated to the Town

The location and size of these easements shall be established in the same manner as easements for establishing short- and long-term maintenance for the drainage system within said easements. The Town shall be granted the right to enter such easements to maintain, repair and/or modify the installments.

4. Right-to-Drain

Where downstream drainage features are not adequate to handle the increase in flows, the applicant shall secure drainage rights in writing from the affected property owners. Such rights shall be noted on the final plans and shall be secured prior to final approval. Rights-to-Drain shall include the right for the Town to enter and maintain existing and proposed facilities, if the drainage system is to be owned by the Town and shall be in a form satisfactory to the Town.

5. State Highway Department (ConnDOT) Permit

Where a proposed storm drainage system connects with a state highway for its appurtenances, the developer shall obtain a permit for the connection from the Connecticut Department of Transportation and shall present a copy of said permit to the Town prior to final approval.

G. Low-Impact Development

1. Intent

a. As a permittee under the Municipal Separate Storm Sewer System (MS4) General Permit, the Town is required to include Low-Impact Development (LID) in its land use regulations.
b. LID is a design strategy to maintain, mimic or replicate pre-development hydrology through the use of numerous site design principles and small-scale treatment practices distributed throughout a site to manage runoff volume and water quality at the source.
c. These regulations are intended to identify LID practices for proposed subdivisions within the Town and to articulate a strong preference for utilizing LID design strategies.
d. LID shall be incorporated to the extent practicable in all subdivisions.

2. Recommended LID Practices

a. Street and Driveway Runoff

i. Developers are encouraged to use Best Management Practices (BMPs) to minimize, treat, prevent and/or reduce degradation of water quality and flooding potential due to stormwater runoff from streets and driveways.
ii. The stormwater management system shall be designed, constructed and maintained with BMPs to minimize run-off volumes, prevent flooding, reduce soil erosion, protect water quality, maintain or improve wildlife habitats and contribute to the aesthetic values of the project.
iii. Stormwater management systems shall be designed in accordance with BMPs as described in the most recent version of the Connecticut Stormwater Quality Manual (CTDEEP).
iv. Infiltration of stormwater shall be accommodated to the extent possible though limitation of land disturbance and grade changes, use of shared driveways, reducing street length, retention of existing natural drainage area and wetlands and use or creation of vegetated islands, vegetated medians and vegetated perimeter buffer strips.
v. Wherever possible, drainage shall be designed such that all surface runoff (both piped and overland flow) is conveyed through vegetated swales, vegetated filter strips, created wetlands, rain gardens, or detention basins with biofiltration prior to discharge into existing wetlands, streams, ponds or other water bodies.

b. Roof Runoff

i. Where practical and feasible, drainage of rooftop runoff shall be directed into rain gardens or a suitable designed and landscaped area on the property or directed to underground infiltration chambers.

ii. On-lot stormwater treatment practices such as bioretention areas and rain gardens, vegetated swales, infiltration practices and rain barrels or cisterns are encouraged.
iii. Developers and engineers are referred to the *2004 Connecticut Stormwater Quality Manual* for design specifications.
iv. Management responsibility and management schedules for these on-lot stormwater practices shall be included with the approved plans.

c. Clearing and Grading

i. Clearing and grading of forests and native vegetation at a site shall be limited to the minimum amount needed to build lots, allow access and provide fire protection.
ii. Clearing, grading and tree preservation areas shall be delineated on project plans.

3. LID Checklist

Applicants for **subdivisions of 4 or more lots or one or subdivision proposing one or more shared driveways** shall submit the LID checklist found in **Appendix B** with their application.

Section 5 Erosion and Sediment Control

A. Intent

1. To prevent or minimize erosion and sedimentation by requiring the submission and certification of an erosion and sediment control plan (E&S Plan) for any application for a zoning permit that involves a land disturbance of one-half acre or greater.

2. To be eligible for certification pursuant to **Section 22a-329** of the Connecticut General Statutes, the E&S Plan shall contain proper provisions to adequately control accelerated erosion and sedimentation and to reduce the danger from stormwater runoff on the proposed site based on the best available technology. Such principles, methods and practices necessary for certification are found in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended. Alternative principles, methods and practices may be used, with the approval of the Commission, provided the justification for such alternative methods is thoroughly demonstrated in the application.

B. Erosion and Sediment Control Plan Requirements

1. The applicant shall provide, in mapped and narrative form, the measures to be taken to control erosion and sediment both during and after construction. The plan and its specific measures shall be based upon the best available technology and shall be in accordance with the principles and the minimum standards provided in the 2002 Connecticut Guidelines for Erosion and Sediment Control, as amended. The E&S Plan shall consist of the following:

2. A narrative that describes:
    a. The proposed project.
    b. The sequence and schedule for grading and construction activities, including start and completion dates, installation and/or application of erosion and sediment control measures and final stabilization of the project site.
    c. The design criteria, construction details, installation and/or application procedures and operation and maintenance program for proposed erosion and sediment control measures.
3. A map at the same scale as the site development plan that shows:
    b. The existing and proposed topography, wetlands, watercourses and water bodies.
    c. The location and design details for all proposed erosion and sediment control measures.
    d. The limits of disturbance including areas to be cleared, excavated, filled and graded.

4. The E&S Plan shall comply with the following criteria:
    a. Any proposed development shall be fitted as closely as possible to the existing topography and soils, so as to minimize the potential for erosion.
    b. To the greatest extent possible, existing vegetation should be retained and protected.
    c. During the sequence and schedule of activity, the smallest practical area of land should be exposed at any one time and that exposure should be kept to the shortest practical time.
    d. Site-appropriate measures shall be used to protect areas exposed during development. Such measures may include, but are not limited to, temporary vegetation, mulching and/or erosion control blankets or netting.
    e. Provisions shall be made to effectively accommodate any increased runoff caused by changed soil and surface conditions, during and after development.
    f. The permanent final vegetation and structures shall be installed as soon as is practical.in accordance with the schedule determined by the EMS plan.

C. Procedure

1. Upon receipt of the complete E&S Plan, the ZEO will review it for compliance with these regulations. At the discretion of the ZEO, any plan submitted may also be reviewed by the Eastern Connecticut Conservation District (ECCD) and/or the Wetlands Agent for the Town. ECCD and/or the Wetlands Agent may propose additional control measures to be incorporated into the plan, which the Commission may take into consideration. Any such review shall be completed within 30 days of the submission of the plan.

2. When the ZEO and/or Wetlands Agent are satisfied that the E&S Plan complies with these regulations, the ZEO will so certify that plan.
3. After installation, the ZEO will inspect the site to verify that all necessary erosion and sediment controls have been properly installed. When satisfied that they have been properly installed, the ZEO will so indicate on the application.

D. Compliance

All erosion and sediment control measures indicated on the certified E&S Plan shall be installed and maintained as scheduled. A cash bond or surety bond to guarantee completion of the control measures may be required, in an amount to be determined by the Commission in consultation with the ZEO and/or Wetlands Agent, as appropriate. If, in the opinion of the ZEO, the control measures have not been installed or maintained in conformance with the certified plan, the property owner will be so notified by certified US Mail. If the problem, as described in that notification, is not addressed within 24 hours of delivery, the ZEO may take steps to correct the problem using funds from any posted bond.

E. Inspection

Signature of the application or owner on an application conveys consent for inspection by the Town.

3. Adjournment
John Lenky moved and Dave Poplawski seconded the motion to adjourn. By unanimous consent the meeting adjourned at 7:51 PM.

Respectfully Submitted,
Gloria Harvey,
Recording Secretary