

SECTION 5.0 SUBDIVISION APPLICATION

5.1 GENERAL REQUIREMENTS

- A.** Where development covers only a portion of land owned by the applicant, the applicant shall be required to submit a plan outlining the proposed development of the entire tract and defining the portion of the tract involved in the current application. Any portion not included in the subdivision shall be labeled “other land of the ‘owner’ not approved for building purposes.”
- B.** The Planning and Zoning Commission may hold a public hearing if, in its judgment, the specific situation requires such action. A plan for resubdivision shall require a public hearing. (Ref. Section 4.3 and 4.4.)
- C.** The Planning and Zoning Commission shall take formal action, either approving or disapproving the application and a copy of such action will be forwarded to the subdivider or his agent who appeared for him.
- D.** The submission of inaccurate or incomplete material may be grounds for denial by the Town Planning and Zoning Commission of the subdivision application.
- E.** If the subdivision application is approved by the Town Planning and Zoning Commission, the subdivider shall make all required corrections and list all stipulations on the final plan required by the Hebron Planning and Zoning Commission prior to obtaining the Secretary’s or Chairman’s signature of approval.
- F.** The final plan to be signed by the Commission Secretary or Chairman shall be a fixed-line mylar or equal which, when returned to the subdivider by the Commission, shall be recorded by the subdivider in the Hebron Town Clerk’s office, as prescribed by Statute and Section 3.3 of these Regulations. In addition, the applicant shall submit the final plan in digital format as required by the Town. Four prints of the full set of final plans shall also be submitted for signature.
- G.** Two blue line copies of each of the following pages from the final recorded plan shall be supplied to the designated Land Trust:
 - 1) The cover page.
 - 2) All topographic site plan pages which the open space or easements are depicted.

5.2 APPLICATION REQUIREMENTS

The following shall be submitted with each Subdivision and Resubdivision application. Fourteen (14) copies of all materials shall be submitted, except as noted below:

- A. Completed Application Form.
- B. Application Fee.
- C. A 1" = 200' Scale Map showing proposed layout and properties within 1000' of perimeter.
- D. Record Subdivision Map (as per Section 5.5 A).
- E. Site Development Plan (as per Section 5.5 B).
- F. Road Plan and Profile (as per Section 5.5 C).
- G. Erosion & Sedimentation Control Plan (as per Section 5.5 D).
- H. Engineer's Report (as per Section 5.5 E).
- I. Report of Conservation Commission concerning open space requirements.
- J. Approval of Inland Wetlands Commission of regulated activity.
- K. Letter of Approval from Sewer Authority or Health Department concerning sewage disposal and water supply.
- L. Supplemental Information (as per Section 5.5 F).
- M. Letter of Acknowledgement or Interest from any Land Trust or similar organization showing a willingness to accept any proposed open space as applicable.
- N. Stormwater Management Plan (as per Section 5.5G)

5.3 PROFESSIONAL CERTIFICATIONS

Plans shall be prepared by both a professional engineer and a land surveyor. The land surveyor shall be responsible for the preparation of information required in Sections 5.2 C and D. The professional engineer shall prepare information required in Section 5.2 E, F, G and H. The engineer and land surveyor shall be licensed in the State of Connecticut.

5.4 PLAN SHEET FORMAT

A. The Drawing Sheet

Sheet size shall be 24 inches wide and 36 inches long, including a one-inch margin outside the ruled border lines on three sides and two-inch border along the left side of the 24-inch side for binding. Plans shall be drawn to 1" = 40' unless otherwise approved by the Commission.

B. Title Block

- 1) Name of subdivision, date and scale.
- 2) Name and address of owner and subdivider.
- 3) Name, address, license, number, signature, and seal of the professional engineer and land surveyor who prepared the drawings.
 - a) Signature to be original and seal to be embossed on at least one print and mylars for filing.

5.5 PLANS AND REPORTS

The following shall be included in the plans and reports required in Section 5.2:

A. Record Subdivision Map

- 1) Location and dimensions of all existing property lines of the subdivision with reference to monuments, pipes, drill holes, foundations, structures or other points of reference of a fixed or semi-permanent nature; Assessor's map, block and parcel numbers; utility poles and numbers.
- 2) Names and addresses of present record owners of abutting properties as indicated in the current records of the Town Assessor and names and approval dates of abutting subdivisions.
- 3) Lines of proposed and existing roads and trails, lots, easements, rights-of-way, and areas to be dedicated to public use; lengths and bearings of all straight lines, adequate data for all curves.
- 4) Area of all proposed lots in square feet and acres, with all zoning setback lines shown and area encumbered by conservation easement for each lot. Each lot shall be numbered and its dimensions on all sides given. If a side is a curved line, a single

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dimension shall, nevertheless, be given in addition to any subordinate dimensions.

- 5) Proposed road names which shall not duplicate or be readily confused with already existing names unless an extension thereof.
- 6) Any additional data necessary, together with the aforesaid data, to enable a licensed surveyor to determine readily the location of every street line, lot line, and boundary line, and to reproduce such lines upon the ground to the A-2 Standard or equivalent of accuracy.
- 7) All lots shall have street numbers as assigned by the Town Assessor.
- 8) Certification by seal of a Connecticut-licensed land surveyor that the Record Subdivision Map has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Minimum Standards for surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc.
- 9) A reference map to the scale of one inch equals one thousand feet (1" = 1000') on each sheet showing the proposed subdivision and tie-in to the nearest street intersection and the sheet's relationship to the overall project. If the application submitted covers only a part of the applicant's holdings, the Commission may require a map which may appear on the same sheet, drawn on a scale in which one inch equals two hundred feet (1" = 200') showing an outline of the plotted area with its proposed road system and an indication of a proposed future road systems and lot layout for the remaining portion of the tract.
- 10) Where the subdivisions are proposed to be developed in phases, such phases shall be clearly delineated on the Record Subdivision Map.
- 11) Total acreage of the entire tract being subdivided and acreage of each section of the total tract being subdivided. The total acreage of all open space. The total acreage of sheet rights-of-way. The total acreage of conservation easements.
- 12) Total number of lots proposed for the entire section and the number of lots in each section.

- 13) Zoning district of entire tract and zoning districts if the total tract is in more than one zoning district.

B. Site Development Plan

- 1) Existing and proposed contours at two-foot intervals extending 50 feet beyond site boundaries by an actual field survey or by means of aerial photogrammetry (Aerial Topography). No other sources will be acceptable.
- 2) Field delineated boundaries of all wetlands, watercourses and waterbodies by a Certified Soils Scientist, including all regulated areas as set forth in the Town of Hebron Inland Wetlands and Watercourses Regulations. The Plan shall contain the acreage of each lot encumbered by wetlands and waterbodies. The Plan shall contain the certification and signature of the Certified Soil Scientist.
- 3) Soils Conservation Service Soils Map Overlay of the entire area to be subdivided.
- 4) The location and boundary of any Special Flood Hazard Areas and Floodways and the Base Flood Elevation.
- 5) Existing edge of tree line and proposed limits of clearing. Location of any individual free-standing mature (+6 inches caliper) trees.
- 6) Rock outcroppings and existing stone walls shall be shown and preserved where practical.
- 7) Existing and proposed lot lines, roadway rights-of-way, width of rights-of-way, pavement edge, pavement width and stations along the street centerline at every fifty-foot intervals.
- 8) Existing and proposed storm drains, drainage structures, water mains, sanitary sewers including any necessary easements.
- 9) Proposed house or structure, subsurface sewage disposal area, reserve area, well location, well protection radii, yard drains and points of discharge of all yard drains, all subsurface drains, and driveway location for each lot of the subdivision.
- 10) Detailed study of soils and subsoils:

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- a) Percolation – Location of all test holes and percolation tests, along with test results of soil profile verified by the Town Sanitarian. A minimum of four test holes shall be shown within each minimum buildable land area.
 - b) Depth to Water-Table and Mottling.
 - c) Water-table gradients (if required).
 - d) Depth to ledge.
- 11) Minimum Buildable Land Area as required by the Hebron Zoning Regulations.

C. Road Plan & Profile

Plan & Profile drawings shall be prepared on a 24" x 36" sheet size with scales of 1" = 40' horizontal and 1" = 4' vertical, showing the following:

- 1) The location and dimensions of existing and proposed street rights-of-way, edges of pavement, curbs, sidewalks, piping, catch basins, manholes, endwalls, bridges, utilities and utility easements, drainage easements, open channels, monuments, contours, all data required for accurate layout of roadway centerlines and rights-of-way, including stationing, bearings, tangent lengths, arc lengths, radii and central angles of all curves; location of property lines intersecting the street right-of-way lines and the names of owners of such adjacent property; typical cross-sections of each street, showing proposed dimensions, materials of construction, and locations of drainage piping and other underground facilities; location and description of survey bench mark; and, street signs and traffic control signs.
- 2) Profiles of existing ground surface at the centerline and at each right-of-way line.
- 3) Profile of the proposed centerline, showing proposed grades, vertical curve data and stations at grade changes, intersections, high points and low points.
- 4) Profiles of all existing and proposed drainage facilities, bridges and other proposed improvements showing locations, sizes, grades and invert elevations.

D. Erosion and Sedimentation Control Plan

- 1) The subdivision plan shall have a separate plan and narrative describing proper measures to control erosion and reduce sedimentation as set forth in the “Connecticut Guidelines for Soil Erosion and Sediment Control” published by the CT Council on Soil and Water Conservation, as amended. Such Erosion and Sedimentation Control Plan shall consist of:
 - a) Location of areas to be stripped of vegetation and other exposed or unprotected areas.
 - b) A narrative including the nature, purpose and description of the project as well as a schedule of operations to include starting and completion dates for major development phases, such as land clearing and grading, street, sidewalk, and storm sewage installation, etc.
 - c) Seeding, sodding, or revegetation plans and specification for all unprotected or unvegetated areas.
 - d) Location, design, and supporting calculations of structural sediment control measures, such as waterways, grade stabilization structures, velocity of dissipation structures, sediment basins, etc.
 - e) Timing of planned sediment control measures.
 - f) General information relating to the implementation and maintenance of the sediment control measures.
- 2) Referral of Erosion and Sedimentation Control Plan – The Commission may refer these plans to the Tolland County Soil Conservation District or other agency or person for consulting technical assistance.

E. Engineer’s Report

A report prepared by a Connecticut-licensed Professional Engineer shall be submitted. The report shall contain a narrative describing existing conditions and the proposed development, with an enumeration of any and all zoning or design standard waivers requested. The report shall also contain engineering calculations, with full back-up materials, documenting the design of all Public Improvements shown on the plans. Where appropriate, the Engineer’s Report shall be modified by amendment to address Town staff and Commission review, reports, comments and

conditions of approval. All such comments shall be specifically addressed by either describing the plan revisions, or presenting justification for not modifying the plans. The following sections may be included as directed by Town Staff; other sections may be included as deemed appropriate by the Design Engineer or Town Staff.

1) Roadway Classification Determination

- a) Provide a scaled map which shows all proposed and existing streets in area of proposed development. Include each street's classification (i.e. arterial, collector, etc.) and pre-and post-development traffic volume (Average Daily Traffic or Design Hourly Volume as appropriate) for each street that may be impacted by development.
- b) Submit detailed calculations to substantiate proposed classification; include all sources, assumptions, adjustment factors and data used.

2) Roadway Design Calculations

- a) Provide a list of design criteria for each proposed or impacted road. Include classification, design speed, width, length, critical slopes and any other pertinent criteria.
- b) Provide all vertical curve design information including slopes, lengths, "K" values and stopping sight distance. Identify any curve which does not meet minimum requirements.
- c) Provide all horizontal curve information, including the minimum safe radius for the applicable design speed.
- d) Prepare sightline drawings for critical intersections.
- e) Identify where underdrains are required; provide all back-up data.

3) Earthwork Analysis

An earthwork analysis shall be submitted for volumes of cut and fill required to construct the proposed road and associated public improvements.

4) Engineer's Opinion of Probable Construction Cost

Separate itemized estimates shall be prepared for a) and b) below as required elsewhere in these regulations:

- a) All public improvements, including common driveways and all landscaping measures shown on the approved plans.
- b) Sedimentation and erosion control measures.

5) Miscellaneous

The following miscellaneous information is also required:

- a) Minimum area of buildable land calculations and worksheets.
- b) Open space dedication calculations.
- c) Any other information deemed necessary or requested, including but not limited to: traffic studies, sanitary sewer studies or reports, and design of sanitary sewer facilities, bridges and all other special structures.

F. Supplemental Information

Whenever the staff or Commission shall deem it reasonably necessary or appropriate to request additional information for consideration of an application, it may require the applicant to submit, at or prior to the hearing, any other information in such form as it may prescribe. Furthermore, whenever the Commission shall deem required information unnecessary for the consideration of an application, applicant may request a waiver of such requirement.

G. Stormwater Management Plan

1) Introduction

a) Purpose and Intent

The purpose of these Regulations is to protect and preserve the surface water, ground water and other natural resources of the Town of Hebron from potential pollution and other adverse impacts resulting from changes to the land surface associated with development proposals, redevelopment proposals and other activities.

The intent of these Regulations is to set forth Stormwater Management Plan requirements, including design practices and technical standards, to be incorporated in the planning, design, construction and maintenance of development proposals, redevelopment proposals and other activities that change the land surface and alter hydrologic conditions that can result in potential pollution and adverse impacts to the surface water, groundwater and other natural resources of the Town of Hebron.

It is not the intent of these Regulations to abrogate or impair the requirements of other local, State or Federal laws, regulations and/or permit programs.

b) Authority

Pursuant to the provisions of Chapter 98, 124, 126, 440, 444, and 446h of the General Statutes of the State of Connecticut as amended, the Town of Hebron Planning and Zoning Commission adopts these Regulations governing the management of stormwater.

c) Applicability

A Stormwater Management Plan shall be prepared for all development proposals, redevelopment proposals and other activities except as noted below.

When submission of an application for approval and/or a permit to the Planning and Zoning Commission of the Town of Hebron is required for a development proposal, redevelopment proposal or other activity, a Stormwater Management Plan shall be included as supporting information to the application.

d) Exemptions

- i. Upon written request, the Commission may waive these Regulations in whole or in part, when the development proposal, redevelopment proposal or other activity will, upon completion, disturb less than one (1) acre of land surface and have less than 10% of impervious surface, or where due to special conditions related to the site or vicinity of the proposal or activity, the requirements of these

Regulations, in whole or in part, may not be technically feasible.

(Note: Any development or redevelopment which calls for a total of over 5 acres also requires the submission of registration to the Connecticut Department of Environmental Protection under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.)

- ii. No waiver request shall be approved that would cause an adverse impact to the surface water, groundwater and other natural resources of the Town of Hebron. The Applicant shall demonstrate to the satisfaction of the Commission that approval of a waiver request will meet this standard.
- iii. Activities defined as Agricultural Uses shall be exempt from these regulations.

e) Separability

If any section, subsection, paragraph, clause or provision of these regulations shall be held invalid or ineffective, in whole or in part, such section, subsection, paragraph, clause or provision shall be held to be separate, distinct and independent, and such holding shall only apply to the section, subsection, paragraph, clause or provision which is held to be invalid or ineffective and shall not affect the validity or effectiveness of the remainder of these regulations.

f) Documents Incorporated by Reference

- i. Connecticut Council on Soil and Water Conservation and Connecticut Department of Environmental Protection, Connecticut Guidelines for Soil Erosion and Sediment Control, Bulletin No. 34, 2002, as amended. (Connecticut DEP Natural Resources Center Bookstore, 79 Elm Street, Hartford, Connecticut 06106-5127 <http://www.dep.state.ct.us/store/>).
- ii. Connecticut Department of Transportation, Connecticut Department of Transportation Drainage

Manual 2000, as amended. (Connecticut Department of Transportation Manager of contracts P.O. Box 317546 2800 Berlin Turnpike Newington, Connecticut 06131-7546 <http://www.dot.state.ct.us/bureau/eh/ehen/sesserv/drainage/index.html>).

- ii. Connecticut Department of Environmental Protection, 2004 Connecticut Stormwater Quality Manual, as amended. (Connecticut DEP Natural Resources Center Bookstore, 79 Elm Street, Hartford, Connecticut 06106-5127 <http://www.dep.state.ct.us/store/>).

2) Definitions

As used in these Regulations, the following definitions shall apply:

- a) “Activity” means any undertaking to alter, develop or redevelop a site for which a permit is required from the Planning and Zoning Commission or the Conservation Commission of the Town of Hebron or the Connecticut Department of Environmental Protection.
- b) “Adverse Impact” means physical, chemical, biological and aesthetic impacts on wetlands, surface water bodies, streams, fish and wildlife, or other natural resources that cause a reduction, impairment or less of natural functions.
- c) “Agricultural Use” means the use(s) defined as such in the Zoning Regulations of the Town of Hebron as amended.
- d) “Applicant” means a person, firm or other legal entity that makes an application for approval and/or a permit to the Planning and Zoning Commission for a development proposal, redevelopment proposal or other activity on a site.
- e) “Base Flow” means normal flow of a stream without the influence of storm runoff.
- f) “Best Management Practice (BMP)” means techniques or structural devices that are effective practical ways of preventing or reducing pollution.

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- g) “Catchment” means the geographical area draining into a watercourse or water body.
- h) “Commission” means the Town of Hebron Planning and Zoning Commission.
- i) “CT DEP” means the Connecticut Department of Environmental Protection.
- j) “CT DOT” means the Connecticut Department of Transportation.
- k) “Development” means activities on a site or sites that result in altering the natural or existing landscape and ecology by:
 - i. adding new or increased impervious surfaces,
 - ii. diverting runoff from its natural course,
 - iii. increasing erosion and sedimentation,
 - iv. increasing the volume and/or rate at which sediment and water are delivered to a stream,
 - v. reducing groundwater recharge and base flow,
 - vi. increasing the risk of flooding, and
 - vii. degrading water quality.
- l) “Discharge” means the volume of water and suspended sediment of surface water that passes a given location in a given time. Usually expressed in cubic feet per second (CFS).
- m) “Ephemeral Stream” means a stream that carries water only after rains or periods of snow melt.
- n) “FEMA” means the Federal Emergency Management Agency.
- o) “First inch of rain” means the first inch of rainfall during a single event.
- p) “Flood” means a temporary rise in flow or stage of any watercourse or stormwater conveyance system that results in stormwater runoff exceeding its normal flow boundaries and inundating adjacent, normally dry area.
- q) “Flood Plain” means any land area susceptible to inundation by stormwater runoff.

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- r) “Geomorphic” means of or relating to the form or surface features of the earth.
- s) “Impervious Surface” means material or structure on, above or below the ground that does not allow precipitation or surface water to penetrate directly not the soil. Constructed impervious surfaces include rooftops, pavements, sidewalks and driveways. Natural impervious surfaces may include clay or rock that does not permit infiltration of surface water.
- t) “Infiltration” means the penetration of water through the ground surface or via openings in conduits or other constructed facilities into sub-surface soils.
- u) “Intermittent Stream” means a stream that carries water most of the time but ceases to flow occasionally because evaporation and seepage into their bed and banks exceed the available Stream flow.
- v) “LID” means low impact development, as discussed in the CT DEP 2004 Connecticut Stormwater Quality Manual.
- w) “Managed Surface” means impervious surface (as defined herein), and mowed landscaped surfaces such as playgrounds, ball fields, tennis courts, cemeteries, etc. whose construction has altered the natural surface of the ground and impeded infiltration of precipitation.
- x) “May” means discretionary action sanctioned by the Commission.
- y) “Maximum extent feasible” means maximum extent feasible as determined by the Commission.
- z) “Natural channels” means watercourse channels shaped geomorphologically by the long-term history of sediment load and water discharge that they experience.
- aa) “NRCS” means the U.S. Department of Agriculture Natural Resources conservation Service.
- bb) “Non-point Source Pollution” means pollution from many diffuse sources.

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- cc) “Owner” means a person, firm or other legal entity that owns the site for which an application is made for approval and/or a permit to the Commission.
- dd) “Paulstrine” means non-tidal wetlands that are dominated by trees, shrubs, emergent vegetations, mosses, and lichens.
- ee) “Peak Flow” means the maximum instantaneous discharge of a stream or river at a given location.
- ff) “Perennial Stream” means a stream that contains water at all times, except during extreme droughts.
- gg) “Redevelopment” means activities that alter an existing developed site or sites. See “Development”.
- hh) “Regulations” means these Stormwater Management Regulations and, where specifically referenced, the Town of Hebron Zoning Regulations and Subdivision Regulations and regulations of the Connecticut Department of Environmental Protection, all of the most current issue.
- ii) “Responsible Person(s)” means a person, firm or governmental agency responsible for implementation of Stormwater Management Plan.
- jj) “Shall” means mandatory action and is not discretionary.
- kk) “Site” means a single parcel, together with any adjacent waters, which is the subject of an application for zoning approval, subdivision approval, or inland wetlands permit.
- ll) “Stream Order” means a numbering system that indicates the location of a stream segment in its watershed, from upstream to downstream:
 - i. First Order – a stream with no tributaries;
 - ii. Second Order – a stream with only first-order tributaries;
 - iii. Third Order – a stream with first and second-order tributaries; and,
 - i. Fourth Order – a stream with first, second, and third-order tributaries.
- mm) “Stormwater” means precipitation including snow melt water.

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- nn) “Stormwater Management” means functions associated with planning, designing, constructing, maintaining, financing and regulating the facilities (both constructed and natural) that collect, store, control or convey stormwater.
 - oo) “Stormwater Management Plan” means a plan for the management of stormwater associated with a proposal or activity.
 - pp) “Stormwater Runoff” means that portion of precipitation and/or snowmelt water that is not absorbed by the ground or retained in its surface, but collects and runs off the land surface.
 - qq) “Subdivision Regulations” means the Subdivision Regulations of the Town of Hebron.
 - rr) “These Regulations” mean the Stormwater Management Regulations of the Town of Hebron”.
 - ss) “Town Engineer” means the Town Engineer of the Town of Hebron.
 - tt) “Town Planner” means the Town Planner of the Town of Hebron.
 - uu) “USDA” means the United States Department of Agriculture.
 - vv) “Vicinity means the area next to or near a site on which activities subject to these regulations are being proposed, which may be potentially adversely affected by such activities.
 - ww) “Watershed” means a geographical area that drains to a specified point on a watercourse or to a water body. Also known as drainage area, catchment or river basin.
 - xx) “Zoning Regulations” means the Zoning Regulations of the Town of Hebron.
- 3) Stormwater Management Plan Requirements

A professional engineer licensed in the State of Connecticut shall prepare the Stormwater Management Plan. Where surveying

and/or mapping associated with the Stormwater Management Plan are required, a land surveyor licensed in the State of Connecticut shall prepare all such surveys and/or maps.

The Commission, or the Town Planner or Town Engineer as its administrative agent, may require that the preparation of the Stormwater Management Plan include other professionals in the disciplines of landscape architecture, the environmental sciences and others.

Twelve (12) copies of the Stormwater Management Plan shall be submitted with each application for approval and/or a permit to the Planning and Zoning Commission.

The Stormwater Management Plan shall include:

- a) An executive summary describing the proposed stormwater management plan, including the basis for design of stormwater management facilities, and its on-site and off-site effects on the watershed hydrology, water quality and wildlife resources.
- b) Proposal or activity background information including:
 - i. A description of the proposal or activity.
 - ii. An outline of the proposal or activity construction period schedule and phasing and sequencing.
 - iii. Identification of the Owner(s) of the property on which the proposal or activity is proposed and identification of the Applicant submitting an application for approval and/or a permit.
 - iv. Identification of the Responsible Person(s) for implementation of the Stormwater Management Plan during the construction period of the proposal or activity and the means of contacting those identified, including mailing address(es), 24-hour telephone numbers(s), facsimile number(s) and email address(es).
 - v. A description of the procedures to be implemented in the case of emergency, adverse environmental impacts, or forecasted and unforeseen severe rainfall events during the construction period of the proposal or activity.
 - vi. Identification of all known local, State and/or Federal regulatory approvals and/or permits that

- may be required to be obtained for the proposal or activity.
- vii. A map based on United States Geological Survey quadrangle mapping depicting the site of the proposal or activity and vicinity and the sub-regional drainage basin(s) and identifying hydrologic unit code(s) that the site of the proposal or activity is located within.
 - viii. A description of the surface water and groundwater resources, including identification of water quality classifications and the presence of impaired water bodies as identified by the CT DEP on and in the vicinity of the site of the proposal or activity.
 - ix. A description of the development and construction limitations and constraints of the site of the proposal or activity including:
 - 1) Areas of exposed bedrock.
 - 2) Areas of shallow depth to bedrock surficial soils as defined by the USDA Soil Conservation Service Soil Survey of Tolland County.
 - 3) Areas of high erosion hazard surficial soils as defined by the USDA Soil Conservation Service Soil Survey of Tolland County.
 - 4) Areas of ground surface slopes greater than or equal to fifteen (15) percent.
 - 5) Areas of potential shallow depth to groundwater.
- c) A description of the objectives of the Stormwater Management Plan including the potential impacts resulting from the proposal or activity and a description of the practices, techniques, and facilities proposed in the Stormwater Management Plan to mitigate such impacts.
- d) Design information including:
- i. Drawings presented at a scale that will allow for clear identification of all existing conditions and post-proposal or activity conditions on and in the vicinity of the site of the proposal or activity depicting:
 - 1) Property boundaries
 - 2) Adjoining property owner names, property addresses and mailing addresses based on the Town of Hebron Assessors records.

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- 3) Zoning Districts and/or boundaries
- 4) Existing ground surface elevation contours preferably referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988
- 5) Proposed ground surface elevation contours, with a contour interval of 2 ft or less,
- 6) Benchmarks(s)
- 7) Buildings and other structures
- 8) Utility company facilities and services
- 9) Drinking water supply reservoir and well locations
- 10) Existing and proposed easements including those for access, utilities, drainage, maintenance and conservation or resource protection purposes
- 11) Existing and proposed areas subject to deed restrictions including those for conservation or resource protection purposes
- 12) Ephemeral, intermittent and/or perennial watercourses
- 13) Surface water bodies
- 14) Special Flood Hazard Areas or boundaries and base flood elevations where determined, floodways or boundaries and/or stream channel encroachment lies
- 15) Inland Wetland areas or boundaries
- 16) Resource protection areas and boundaries
- 17) Aquifer protection district areas or boundaries
- 18) Public water supply watershed areas or boundaries
- 19) Areas of ground surface slope greater than or equal to fifteen (15) percent
- 20) Areas of exposed bedrock
- 21) Areas of shallow depth to bedrock surficial soils as defined by the USDA Soil Conservation Service Soil Survey of Tolland County or subsequent report by the NRCS
- 22) Areas of potential shallow depth to groundwater
- 23) The locations of all subsurface investigations
- 24) Existing land use
- 25) Existing ground cover conditions including vegetation types

- 26) Proposed land use
 - 27) Proposed ground cover conditions
 - 28) Existing impervious surface and managed surface coverage areas
 - 29) Proposed impervious surface and managed surface coverage areas
 - 30) Surface water drainage patterns and watershed and/or catchment boundaries
 - 31) The locations of all stormwater collection, conveyance and management systems and other hydraulic structures including, culverts, bridges and dams
 - 32) Tributary land areas to appropriate points for purposes of hydrologic a hydraulic analysis and hydrologic and hydraulic design of proposed practices and techniques, and structures or facilities.
 - 33) Travel time component and time of concentration flow paths for purposes of hydrologic and hydraulic analysis and design
- ii. Subsurface soil investigation information required for the design of all stormwater management practices, techniques and facilities where the determination of soil type classification and depths to groundwater, restrictive soil layers and rock are necessary, and where the determination of particle gradation analyses in-situ soil properties including soil infiltration rates are necessary.
 - iii. A description of design methodologies and computer models used, and hydrologic, hydraulic, and water quality design computations for all practices, techniques and facilities. In general, this information should be submitted in the form outlined in the hydrologic and hydraulic design and analysis documentation requirements of the CT DOT Drainage Manual 2000, as amended.
 - iv. Drawings including plans, profiles, sections, and typical details of all stormwater management system components at adequate scale(s) and containing sufficient detail to clearly depict the intent of the design, the details of construction and/or installation, and the dimensions and materials used.

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- v. Structural and geotechnical design and supporting information for certain stormwater management system components including but not limited to, storm sewers, channels, outlet protection measures, culverts, bridges, dams, spillways, outlet works and other structures, as required by the Town Engineer.
- e) Post Proposal or activity Stormwater Management Operation and Maintenance Plan including:
 - i. A proposed operation and maintenance manual, including a description of the operation and maintenance tasks, and an implementation schedule.
 - ii. Identification of the Responsible Person(s) for implementation of the Stormwater Management Operation and Maintenance Plan including mailing address(es), contact 24-hour telephone number(s), facsimile number(s) and email address(es).
- f) Agreements, declarations of covenants and restriction, easements and/or other legal instruments governing the requirements for operation and maintenance of all post construction proposal or activity stormwater management measures as required by the Commission and the Town of Hebron Attorney.

4) Referral to Connecticut DEP

If the commission determines that the activity proposed in an application may result in significant non-point source pollution to groundwater or surface water drinking supplies, or any other waters of the state, it may refer the application, including the stormwater management plan, to the Connecticut DEP for a determination as to whether a discharge permit under section 22a-430 of the General Statutes, or other state authorization, is required.

5) Standards and Criteria for Decision

In order to approve any application for which a stormwater management plan is required, the commission shall find the stormwater management plan consistent with the following criteria. If such application is also subject to the requirements of an aquifer protection overlay zone or any other requirements for non-point source pollution control, the more stringent requirements shall control.

SECTION 5.0 SUBDIVISION APPLICATION

- a) Direct channeling of untreated surface water runoff into adjacent ground and surface waters shall be prohibited.
- b) To the maximum extent feasible, no net increase in rates of urban stormwater runoff from the site shall result from the proposed activity.
- c) To the maximum extent feasible, design and planning for site development shall provide for minimal disturbance of pre-development natural hydrologic conditions, and shall reproduce such conditions after completion of the proposed activity.
- d) Pollutants shall be controlled at their source to the maximum extent feasible in order to contain and minimize contamination.
- e) Stormwater management systems shall be designed and maintained to manage site runoff in order to eliminate surface and groundwater pollution, prevent flooding and, where required, control peak discharges and provide pollution treatment.
- f) Stormwater management systems shall be designed to collect, retain and treat the first inch of rain on-site, so as to trap floating material, oil and litter.
- g) On-site retention or detention of stormwater shall be employed to the maximum extent feasible. On-site methods include but are not limited to landscaped depressions, grass swales, infiltration trenches and retention or detention basins.
- h) To the maximum extent feasible, post-development runoff volumes shall not exceed pre-development volumes. Stormwater runoff volumes shall be controlled by encouraging infiltration.
- i) Stormwater treatment systems shall be employed where necessary to ensure that the average annual loadings of total suspended solids (TSS) following the completion of the proposed activity at the site are no greater than such loadings prior to the proposed activity. Alternatively, stormwater treatment systems shall remove 80% of TSS

discharge from the site on an average annual basis.
Chemical treatment of stormwater is not acceptable.

- j) Where it is found necessary to utilize constructed, channelized drainage systems, the best available technology shall be employed in the design of such systems, including oil and sediment separation devices, filtration and discharge techniques and erosion control. Stormwater generated from impervious surfaces and collected and conveyed in such systems shall be initially treated in catch basins for removal of heavy particulates and then further treated in sediment and oil separation devices for secondary separation of particulates and oils.
 - k) The design of all stormwater management facilities and the selection of stormwater management practices and techniques shall be such as to minimize, to the most practical extent possible, the requirements for maintenance.
 - l) The Commission may withhold approval of a stormwater management plan if it fails to meet the criteria set forth above.
- 6) Design Guidance and Recommendations

The following documents, incorporated in these Regulations by reference, provide guidance and recommendations for the analysis and design of practices and techniques, and structures and other facilities to be incorporated in the Stormwater Management Plan. Other standards of practice for engineering analysis and design, computational or sizing methodologies may be used upon review and approval of the Commission, or the Town Planner or Town Engineer as its administrative agent.

Guidance and recommendations for the analysis and design of certain practices and techniques, structures and other facilities may be found in one or more of the following documents; however, in general:

- a) The design of all erosion and sediment control structures, facilities, practices and techniques shall be in accordance with the recommendations and guidance given in the Connecticut Guidelines for Soil Erosion and Sediment Control, 2002, as amended.
- b) The conceptual design of all stormwater management structures, facilities, practices and techniques shall be in

accordance with the recommendations and guidance given in the 2004 Connecticut Stormwater Quality Manual, as amended.

- c) The detailed design of all stormwater collection, conveyance (including stormwater outlet protection measures), management or other hydraulic structure or facilities shall be in accordance with the recommendations and guidance given in the CT DOT Drainage Manual 2000, as amended.
 - d) Where a conflict occurs between the documents listed above, or between any of these documents and these regulations, the more stringent requirement, as determined by the Commission, shall govern.
- 7) Design Practices and Technical Standards

Stormwater Management Plans for development proposals, redevelopment proposals and other activities shall incorporate the minimum design practices identified herein, as may be appropriate for the site conditions of the proposal or activity.

The Stormwater Management Plan shall also be designed such that the minimum technical standards identified herein, as may be appropriate for the site conditions of the proposal or activity, are achieved.

Additional design practices and/or technical standards may be required to be incorporated in the Stormwater Management Plan by the Commission and the Town Planner and Town Engineer acting as the Commission's administrative agents, where the proposal or activity will discharge stormwater runoff to an area identified as a sensitive surface water, groundwater or other natural resource, or to an area identified as impaired and/or experiencing existing flooding, stream channel instability or water quality problems.

- a) Site planning and design practices, best management practices (especially those referred to as non-structural practices) and practices referred to as Low Impact Development (LID) techniques intended to mitigate the effects of changes to the land surface or hydrologic conditions shall be considered in the design of a development proposal, redevelopment proposal or other activity.

These planning and design practices and techniques are intended to:

- i. Protect and preserve a sites' natural features and systems including drainage systems and resource protection and buffer areas
- ii. Preserve vegetation
- iii. Avoid steeply sloped areas
- iv. Avoid excessive site grading
- v. Avoid unnecessary compaction of existing soil surfaces during construction activities
- vi. Reduce the area of impervious and managed surface coverage
- vii. Encourage the disconnection of impervious and managed surfaces
- viii. Minimize changes in surface water drainage patters
- ix. Promote infiltration of stormwater runoff
- x. Promote temporary storage of stormwater runoff
- xi. To the maximum extent feasible, minimize increases in volume of stormwater runoff and changes in magnitude, frequency and duration of stormwater discharges to receiving waters
- xii. Generally prevent and minimize impacts to surface and ground water resources

The guidance and recommendations regarding site design practices, best management practices and LID techniques given in the 2004 Connecticut Stormwater Quality Manual, as amended shall be the minimum practices and techniques considered.

Additional resources regarding these practices and techniques can be found in the Additional Information Sources and References sections of Chapter Four – Site Planning and Design, of the 2004 Connecticut Stormwater Quality Manual, as amended.

b) Stormwater Infiltration

The guidance and recommendations given in the 2004 Connecticut stormwater Quality Manual, as amended, shall be the minimum used in the design of stormwater infiltration structures, facilities, practices and techniques.

- i. Where stormwater runoff is proposed to be infiltrated into natural soils and/or fill material, investigations shall be made of the hydrogeologic conditions of the site and in the vicinity of the proposed infiltration practices, technique, structure or facility, including field testing to determine soil infiltration rates under pre-development soil and groundwater conditions and to estimate infiltration rates under post-development soil and groundwater conditions.
- ii. If a stormwater infiltration practice, technique, structure or facility is also intended to function to control peak rates of discharge of stormwater runoff, the practice, technique, structure or facility shall be designed in accordance with the recommendations and guidance given in the Connecticut Department of Transportation Drainage Manual, as amended, as well as the 2004 Connecticut Stormwater Quality Manual.

c) Peak Runoff Attenuation

To the maximum extent feasible, the 2-year, 10-year, 25-year, 50-year and 100-year post-development peak discharge rates shall not exceed the corresponding pre-development peak discharge rates.

- i. The Commission may waive the peak runoff attenuation criteria for sites that discharge directly to a large stream (fourth order or greater) where the development area is less than 5 percent of the watershed area upstream of the development site.
- ii. NRCS peak flow calculation methods such as TR-55 or TR-20 shall be used to compute peak flows.
- iii. Where existing or new open earthen channels are proposed as part of the on-site stormwater management facilities, the Applicant shall either:
 - 1) Reduce the post-development, redevelopment or other activity 2-year, 24 hour peak flow rate to 50% of the 2-year, 24-hour predevelopment rate or,
 - 2) Reduce the post-development, redevelopment or other activity 2-year, 24 hour peak flow rate to the 1-year, 24-hour predevelopment rate.

d) Downstream Analysis

A downstream analysis shall be performed to identify potential detrimental effects of proposed stormwater treatment practices and detention facilities on downstream areas.

- i. The downstream analysis should include the following elements:
 - 1) Flow routing calculations shall proceed downstream to a confluence point where the site drainage area represents 10 percent of the total drainage area.
 - 2) Calculation of peak flows, velocities, and hydraulic effects at critical downstream locations (stream confluence, culverts, other channel constructions, and flood-prone areas) to the confluence point where the 10 percent rule applies.
 - 3) The analysis should use an appropriate hydrograph routing method, such as TR-20, to route the pre- and post-development runoff hydrographs from the project site to the downstream critical locations.
 - 4) Where the results of the downstream analysis indicates that the proposed stormwater management plan will result in an increase in peak flow in the receiving stream downstream of the site, due to the delayed onset of peak outflow from a stormwater detention basin coinciding with the peak discharge in the receiving stream, adequate stormwater runoff control measure shall be designed and constructed to prevent such increase in peak flow.
- ii. Adequacy of Existing Downstream Stormwater Facilities to Accept Concentrated Stormwater Runoff:
 - 1) Where site and design conditions are such that concentrated stormwater runoff resulting from post-development, redevelopment or other activity is proposed to be discharged to or through any man-made or natural channel, downstream stormwater collection and conveyance system, culvert, bridge or other hydraulic

facility, the adequacy of the existing facilities to convey such flows shall be verified.

- 2) Where it is determined that any existing downstream man-made or natural channel is experiencing channel instability, flooding, or water quality problems under existing conditions or will be hydraulically inadequate to accept the 2-year, 24-hour recurrence interval peak flow resulting from post-development, redevelopment or other activity, the Applicant shall either:
 - a) Reduce the post development, redevelopment or other activity 2-year, 24-hour peak flow rate to 50% of the 2-year, 24-hour predevelopment rate, or
 - b) Reduce the 2-year, 24-hour peak flow rate to the 1-year, 24-hour predevelopment rate.
 - c) The requirements of a) and b) above do not apply where the developed site contains less than one acre of impervious cover or where the stormwater runoff discharges to a fourth order or greater stream or water body where the area of the site is less than 5 percent of the watershed area upstream of the site unless known water quality problems exist in the receiving waters.
- 3) Where it is determined that any existing downstream closed conduit stormwater collection and conveyance system will be hydraulically inadequate to accept the 10-year, 24-hour recurrence interval peak flow resulting from post-development, redevelopment or other activity without being surcharged, the Applicant shall develop a stormwater management plan that will attenuate the post-development, redevelopment or other activity 10-year recurrence interval peak rate of discharge to that experienced under existing conditions.
- 4) Where it is determined that any existing downstream culvert or bridge providing for

- the drainage from a watershed less than one square mile in area in which there is an established watercourse will be hydraulically inadequate to accept the 25-year, 24-hour recurrence interval peak flow resulting from post-development, redevelopment or other activity without flooding or damaging the highway or adjacent property, the Applicant shall develop a stormwater management plan that will attenuate the post-development, redevelopment or other activity 25-year recurrence interval peak rate of discharge to that experienced under existing conditions.
- 5) Where it is determined that any existing downstream culvert or bridge providing for the drainage from a watershed less than one square mile in area in which there is an established watercourse will be hydraulically inadequate to accept the 50-year, 24-hour recurrence interval peak flow resulting from post-development, redevelopment or other activity without flooding or damaging the highway or adjacent property, the Applicant shall develop a stormwater management plan that will attenuate the post-development, redevelopment or other activity 50-year recurrence interval peak rate of discharge to that experienced under existing conditions.
- 6) Where it is determined that any existing downstream culvert or bridge providing for the drainage from a watershed one square mile or larger in area will be hydraulically inadequate to accept the 100-year, 24-hour recurrence interval peak flow resulting from post-development, redevelopment or other activity with at least one foot of under-clearance relative to the low chord of the upstream face of the structure and not create a backwater that will flood or endanger property or roads upstream, the Applicant shall develop a stormwater management plan that will attenuate the post-development, redevelopment or other activity 100-year recurrence interval peak

rate of discharge to that experienced under existing conditions.

- e) Erosion and Sediment Control
 - i. The guidance and recommendations given in the Connecticut Guidelines for Soil Erosion and Sediment Control, 2002, as amended shall be the minimum used in the design of erosion and sediment controls.
 - ii. The requirements of the Zoning Regulations and Subdivision Regulations regarding the prevention or minimization of erosion and the transport and deposition of sediment shall also be incorporated in the Stormwater Management Plan. Where such requirements conflict with the requirements for the Connecticut Guidelines for Soil Erosion and Sediment Control or other requirements of these regulations, the more stringent requirements, as determined by the Commission, shall govern.

- 8) Operation and Maintenance
 - a) Prior to the issuance of any permit(s) for which a stormwater management plan is required, the land use agency (agencies) involved in the issuance of said permits shall require the applicant or owner to execute an Operation and Maintenance Agreement binding the owner(s) of the property for which the permit has been applied to a five (5) year period for operating and maintaining in good condition, and promptly repairing and restoring as required, all required stormwater management procedures and facilities. All repairing and restoration activities shall be subject to prior approval of the land use agency (agencies) involved in the issuance of said permit(s).
 - b) All stormwater management facilities shall be properly operated and maintained by the owners(s) at all times after the expiration of the aforesaid five (5) year period such that the facilities do not become nuisances.
 - c) Provisions shall be made for operation and maintenance of private stormwater management facilities and the financing of such operation and maintenance on private basis without responsibility or liability for participation by the Town of Hebron

- i. This requirement does not apply to stormwater management facilities that are part of a residential subdivision as defined in the Subdivision Regulations.

9) Encroachment on Flood Plains

No encroachment into the floodplain of a stream shall be made if it is inconsistent with the intent and criteria of the national Flood Insurance Act of 1968 as amended, the standards and criteria set by the FEMA National Flood Insurance Program and Section 8.10 (Flood Hazard) of the Zoning Regulations.

10) Discharge to a CT DOT Drainage Facility

Where discharge to any CT DOT drainage facility is proposed, the application for approval of a stormwater management plan should be accompanied with a copy of the permit from the CT DOT for such discharge.

11) Record Drawings

Record Drawings of stormwater management facilities as constructed shall be prepared and submitted to the Commission under the direction of the Applicant's Engineer.

12) Bonding Requirements

Bonding requirements for proposed stormwater management reassures shall be as required by the applicable land use ordinances and regulations of the Town of Hebron including but not limited to the Zoning Regulations and Subdivision Regulations.

13) Violations

Any violation of requirements of these regulations shall be subject to the enforcement remedies and penalties established by the applicable regulations of the Town of Hebron, including but not limited to the Zoning Regulations and Subdivision Regulations.