

TOWN OF BLOOMFIELD

SUBDIVISION REGULATIONS

STANDARD SPECIFICATIONS
FOR THE
DESIGN AND CONSTRUCTION
OF SUBDIVISION IMPROVEMENTS

STANDARD DETAILS

Amended to June 5, 1992

**TOWN OF BLOOMFIELD
SUBDIVISION REGULATIONS
TABLE OF CONTENTS**

SECTION I	<u>PURPOSE</u>	1
SECTION II	<u>DEFINITIONS</u>	1
SECTION III	<u>GENERAL PROVISIONS</u>	
	1. Subdivision Plan Required	2
	2. Approved Plan	2
	3. Suitability of Land	2
	4. Inland Wetlands Requirements	2
	5. Public Health and Safety	2
	6. Fire District Review	2
	7. Subdivision Improvements Requirements	2
	8. Reserve Strip	3
	9. Preservation of Natural Features	3
	10. Zoning Compliance	3
	11. Required Frontage	3
	12. Open Space	3
	13. Access	3
	14. Solar Energy	3
	15. Authorization to Proceed	4
SECTION IV	<u>PROCEDURE</u>	
	1. Filing of Application	4
	2. Public Hearings	4
	3. Staff Review	4
	4. Surety	4
	5. Commission Action	4
	6. Final Plan	5
	7. Endorsement and Filing of Plan	5*
	8. Certificate Bonding	5*
	9. Conditional Approval	5*
	10. Authorization to Proceed	5
	11. Completion of Improvements	5
	12. Mylar Requirement	6
SECTION V	<u>PLAN REQUIREMENTS</u>	
	1. Plan Form and Size	6
	2. Subdivision Plan Requirements	6
	3. Site Development Plan Requirements	6
	4. Construction Plan and Profile Requirements	7
	5. Profile Plan	8
	6. Grading Plan	8
	7. Cross-Section Plan	8
	8. Utilities Plan	8
	9. Erosion and Sedimentation Control Plan	8
	10. Required Documentation	9
	11. Optional Documentation	9

* = (Revisions and new subsections)

SECTION VI

SURETY AND DEED REQUIREMENTS

1.	Surety Requirements	9
	a) Performance Surety	9
	b) Maintenance Surety	10
	c) Additional Surety	10
	d) Partial Release of Surety	10
	e) Final Release of Surety	10
2.	Subdivision Agreement	10
	a) Agreement	10
	b) Extension of Completion Date	10
	c) Developer Liability	11
3.	As-Built Plans	11
4.	Warranty Deeds	11

SECTION VII

STREETS AND MONUMENTS

1.	Specification Requirement	11
2.	Street Classification	11
3.	Street Layout	11
4.	Street Names	11
5.	Street Width	11
6.	Cul-de-sacs	12
7.	Merestones	12
8.	Street and Traffic Signs	12

SECTION VIII

UTILITIES AND SANITARY SEWER REQUIREMENTS

1.	Underground Utilities	12
2.	Waiver of Underground Requirement	12
3.	Public Water Installation	13
4.	Private Water Installation	13
5.	Health Code Requirement-Water	13
6.	Public Sanitary Sewers	13
7.	Health Code Requirement-Sewage	13
8.	Sewer Connection Required	13
9.	Percolation test Required	13
10.	Septic System Certification	13
11.	Capped Sewer Certification	13

SECTION IX
SYSTEM

STORM DRAINAGE AND PRESERVATION OF NATURAL DRAINAGE

1.	Natural Drainage System	14
	a) Diversion Prohibited	14
	b) Preservation of Natural Contours	14
	c) Structure/Watercourse Separation	14
2.	Storm Drainage Requirements	14
	a) Proper Drainage	14
	b) Discharge	14
	c) Incremental Increase in Runoff	14
3.	Sedimentation and Erosion Plan	14
4.	Site/Grading Plan for Building Permit	14

SECTION X

ENFORCEMENT, SEPARABILITY AND AMENDMENTS

1.	Amendments	15
2.	Invalidity	15
3.	Penalties	15
4.	Waiver of Variance of Regulations	15
5.	Moratorium on Acceptance of Subdivision Application	15

SUBDIVISION REGULATIONS FOR
THE TOWN OF BLOOMFIELD, CONNECTICUT

APRIL 1985

SECTION I – PURPOSE

For the purpose of promoting and protecting the general welfare, health and public safety, and providing for the orderly growth of the Town of Bloomfield, the integration of each subdivision of land into the land surrounding it, the provision of open spaces and recreation areas, the continuation of streets from one part of the community to another, the efficient use of solar resources, and the proper design and construction of streets, drainage, sewage and other facilities, the Town of Bloomfield hereby adopts the following Regulations for the subdivision of land, pursuant to Chapter 126 of the general Statutes of the State of Connecticut, as revised.

SECTION II- DEFINITIONS

1. Subdivision. The division of a tract or parcel of land into three or more parts or lots for the purpose, whether immediate or future, of sale or building development expressly excluding development for municipal, conservation or agricultural purpose, and includes resubdivision.
2. Resubdivision. A change in a map of an approved or recorded subdivision, as defined above, if such change:
 - a) Affects any street layout on such map;
 - b) Affects any area reserved thereon for public use;
 - c) Diminishes the size of any lot shown thereon, and creates an additional building lot;If any of the lots thereon have been conveyed after the approval or recording of such map.
3. Town. The Town of Bloomfield, Connecticut.
4. Commission. The Town Plan and Zoning Commission of the Town of Bloomfield, Connecticut.
5. Subdivision Plan. The subdivision plan shall consist of plans, which conform to Section V- 1 and 2 of these regulations.
6. File Plan. The approved subdivision plan properly endorsed to be filed with the Town Clerk.
7. Street. Any piece of land designed or intended as a way over which the owners of the lot in the subdivision shall have the right of access to and from their respective lots or shall connect any lot or lots in such subdivision with an accepted street.
8. Accepted Street. A street which has become public by virtue of dedication and formal acceptance by the Town of Bloomfield.
9. Minimum Frontage. With reference to lots in any subdivision shall mean the minimum width obtainable between the sidelines as measured along the street line. Where the front lot is an arc or the side lines converge toward the front lot lines, the distance may be measured along the front setback line.
10. Subdivider. The owner of record of the land or the owner 's legal representative at the time the subdivision application is filed.

SECTION III- GENERAL PROVISIONS

1. Subdivision Plan Required
No subdivision of land shall be made and no lot in a subdivision shall be sold, offered for sale, or subdivided, until a Subdivision Plan, prepared in accordance with the requirements of these Regulations, has been approved by the Commission and filed or recorded in the office of the Town Clerk
2. Approved Plan
No subdivision plan shall be filed or recorded by the Town Clerk until its approval by the Commission is indicated on the plan, and any recording of a subdivision plan without such approval shall be void. No approval plan may be signed for recording by the Commission until all changes, amendments, corrections or conditions required for approval have been met.
3. Suitability of Land
No land shall be subdivided unless it is of such character that it can be used for building purposes without danger to health or safety.
4. Inland Wetlands Requirements
No subdivision of land meeting the review requirements of the Bloomfield inland Wetlands & Water Courses Commission shall be officially received for processing until approved by the Commission.
5. Public Health and Safety
No land shall be subdivided unless provision is made for water supply, proper drainage, and sanitary sewage disposal adequate in the opinion of the commission to protect the public health, safety, and the general welfare.
6. Fire District Review
No subdivision plan shall be approved until the appropriate Bloomfield fire district for the adequacy of hydrant locations, fire safety provisions, and any other comments the district may feel appropriate has reviewed it. Where a public hearing is held, the District report, if any shall read into the record of the hearing.
7. Subdivision Improvements Required
Each subdivision plan shall provide for adequate water supply, storm drainage, surface water drainage, sanitary sewage disposal, fire hydrants as required, curbs and other improvements in amounts and locations considered necessary by the Commission to protect the health, safety and general welfare.

For residential subdivisions, the developer shall provide two (2) street trees per lot, with species and location reviewed by Town staff.

All required improvements shall be constructed or provided at the developer's expense, to the standard required by the Town of Bloomfield Standard Specifications for the Design and Construction of Subdivision Improvements. (8/5/88)

Where required improvements extend to abutting streets, or in the case of storm surface water drainage, beyond, the subdivider may be required to install at his expense such required improvements, including but not limited to the reconstruction of abutting public street to the standard required by the Town of Bloomfield. Where the public improvements are a part of the Town's Capital improvement Program, the subdivider may at the discretion of the Commission contribute an amount of money, as specified by the Commission, as his portion of the required improvements.

8. Reserve Strip
No privately owned reserve strip shall be permitted which limits or controls access to any street or to any land dedicated or proposed to be dedicated for public use or which shall impair the orderly development of the Town.
9. Preservation of Natural Features
As a condition of approval of any subdivision the Commission may require that due regard be given to the preservation and enhancement of natural features, scenic points and vistas, ridgelines, large trees, the natural cover and contours of the land, historic places and other community assets. Any removal of trees and/or regarding which is not consistent with the approved subdivision plans must be reviewed and approved by the Town Engineer and/or the Commission. (8/5/88)
10. Zoning Compliance
The Commission shall not approve any subdivision plan which would result in the creation of a lot or parcel that does not conform to requirements of the Bloomfield Zoning Regulations, except that such subdivision may be permitted, at the discretion of the Commission, where such lot or parcels are to be conveyed to the owner of an existing contiguous lot of record or for open space or other dedicated public use with appropriate access.
11. Required Frontage
No lot shall be approved which does not have required frontage on a street which is constructed or bonded for construction in conformance to Town standards or on an existing Town road except where such lot meets the requirements of specific zoning regulations which permit, under special circumstances, the development of rear lots.
12. Open Space
Public open space or recreation space, including where appropriate, recreation facilities, may be required by the Commission in amounts and locations it considers reasonable, where in the judgment of the Commission the subdivisions of such size and /or location to require such space. Where judged appropriate by the Commission such open space or recreation space shall be adequately cleared, graded, drained and seeded to serve its intended purpose. This requirement may be applied to preserve natural features, scenic points and vistas, ridgelines. Large trees and historic places. Where land to be subdivided includes farmland, this requirement may be met by the contribution of farmland. In no case shall the Commission requirement of such open space exceed 15% of the total land in the subdivision, except in the case of open space subdivisions where the requirements may be in addition to open space land required by those regulations. Such land shall include dry land suitable for recreation.
13. Access
No land may be approved for subdivision whose access, by the nature of its location requires Town of Bloomfield fire, safety, and health and school vehicles to leave the Town of Bloomfield to serve residents of subdivision. The Commission under special circumstances may waive this requirement where the Commission specifically votes that the restricted access problem is not significant.
14. Solar Energy
In order to encourage energy efficient patterns of development and land use, the use of solar and other renewable forms of energy and energy conservation, subdivision plans submitted must demonstrate that in developing such plans consideration has been given to passive solar energy techniques reflected in site design which maximizes solar heat gain, minimizes heat loss, and provides thermal storage within a building during the heating season and minimizes heat gain and provides for natural ventilation during the cooling season. Such techniques shall include, but not be limited to: house orientation, street and lot layout, vegetation, natural and man-made topographical features and protection of solar access within the development.

15. Authorization to Proceed

No construction activity may take place in any subdivision until the approved plan has been filed with the Town Clerk and an “authorization to proceed” has been issued by the Town. The Town of Bloomfield will not inspect, or accept any improvement required in a subdivision where site work has been started prior to an “authorization to proceed”, issued in accordance with Section IV- 8 of these Regulations.

16. Consideration of Aquifer Protection

To protect and preserve the supply of potable drinking water by protecting and preserving sub-surface aquifers.

SECTION IV- PROCEDURE

1. Filing an Application

Application for subdivision must be filed with the Office of Planning and Zoning and Permits are to be completed shall contain the following documents:

- a) 8 copies of the subdivision plan showing all information required by these Regulations
- b) 8 copies of a site development map and where required, six copies of construction plans, public utility plans and erosion and sedimentation control plans.
- c) A written application completed in full, on forms provided by the Commission. The application will be officially received at the next regularly scheduled Commission meeting, provided that all requirements of these regulations have been met, but in no case more than 35 days after the submission of a complete application. Each application must be signed by the owner of record or accompanied by an affidavit stating the applicant has the owner’s permission to make such application. 8/5/88
- d) A fee of \$25 per lot or \$50, whichever is greater.
- e) 8 copies of all required documentation.

2. Public Hearings

The Commission will hold a public hearing on all re-subdivision applications and may hold a public hearing in any subdivision application. Due notice of all public hearings will be given in accordance with the General Statutes of the state of Connecticut.

3. Staff Review

Prior to the submission of any subdivision plan the applicant may, at his discretion, meet with the Town staff at any of their regularly scheduled meetings. All plans to be reviewed must be received at the Office of Planning, Zoning, and Permits at least fourteen days prior to staff meeting.

4. Surety

No subdivision plan shall receive final approval by the Commission until all surety procedures have been complied with as provided by these regulations.

5. Commission Action

The Commission shall approve modify and approve or disapprove the plan within 65 days of its official receipt or within 65 days of the completed public hearing. Failure of the Commission to act shall be considered an approval and in disapproving a subdivision plan the Commission shall state its reasons. Notice of these actions shall be given as required by the statute. Commission approval shall include by reference any conditions of approval by other local regulatory agencies such as the Zoning Board of Appeals or Inland Wetlands and Watercourse Commission. (8/5/88)

6. Final Plan

Following the approval of a subdivision plan, the subdivider shall prepare a plan for filing showing all elements required by these Regulations, and any additions, corrections or conditions required by the Commission in their approval.

7. **(IV. Revised) Endorsement and Filing of Plan**
 The subdivision plan, approved and endorsed by the Commission shall be filed on record in the office of the Town Clerk by the subdivider at his expense. Any approved plan not filed within 90 days of the Commission's failure to act shall be null and void, except that the Commission may extend the time for such filing for two (2) additional periods of ninety (90) days and the plan shall remain valid until expiration of such extended time. (6/5/92)
8. **(New Subsection) Certificate Bonding**
 Prior to filing and recording the plan in accordance with above Sections (Section IV- 6 & 7) a Certificate of Completion for all required subdivision improvements shall be submitted as to the phasetor phases of the subdivision for which final approval is being sought, together with a statement from the Town Engineer reflecting that the public improvements called for in the subdivision plan for such phase or phases have been completed. In lieu of the completion of such work and installation in one or more of the phases previous to the filing of subdivision plan, the Town Manager may, on behalf of the Commission, accept a bond in accordance with the provisions of Section VI as to any one or more of the phases of the subdivision for which the work and installation is not complete. (6/5/92)
1. **(New Subsection) Conditional Approval**
 In lieu of the furnishing of a bond as provided for in Section IV- 8, the Commission may authorize the filing of a plan with conditional approval endorsed thereon as to one or more of the phases of subdivision. Such approval shall be conditioned on (1) the actual construction, maintenance and installation of any improvements or utilities prescribed by the Commission for such phase or phases; or (2) the provision of a bond provided in Section IV-8. Upon the occurrence of either of such events, the Commission shall cause a final approval to be endorsed thereon as to such phase or phases. Any such conditional approval shall lapse on the date specified by the Commission, which period shall not exceed five (5) years from the date such approval is granted. The applicant may apply for and the Commission may, in its discretion, grant a renewal of such conditional approval for an additional period up to five (5) years. Any person, firm or corporation who, prior to such final approval, sells pr offers for sale any lot within the phase or phases of the subdivision so subdivided pursuant to a conditional approval shall be fined in accordance with the provision of the State Statute.
2. **Authorization to Proceed**
 Following the filing of the subdivision plan, the applicant may request an Authorization to Proceed from the Town Engineer, in accordance with the following procedure:
- It shall be the responsibility of the developer to notify the Town Engineer at least seven (7) days in advance of any construction activity. Public Works staff will meet with the contractor and define the construction inspection schedule, which will include, but not be limited to the initial site inspections prior to any construction with all public improvements, and any conditions of the subdivision approval. Representatives from all private utilities involved will be requested to attend this meeting in order that they may become familiar with the proposed construction and schedule their activities accordingly. No construction work, including removal of trees or stripping of land is to start until the pre-construction meeting is held and the office of the Director of Public Works issues an Authorization to Proceed. (8/5/88)
3. **Completion of Improvements**
 All improvements in an approved subdivision must be completed within five years or must be reapproved under whatever regulations are in effect at the time of reapproval.
- Performance surety as required by Section VI-a and the Subdivision Agreement specified in Section VI-2 of these regulations shall be renewed annually during this 5-year period, subject to review and approval by the Director of Public Works, until such time as all required

Improvements have been completed, at which time Maintenance Surety as required by Section VI-1-b shall be provided. (8/5/88)

4. Mylar Requirement

After the filing of the subdivision plan and prior to the issuance of the "Authorization to Proceed", the subdivider must submit 5 sets of all plans, one of which shall be Mylar reproducible, plus additional Mylar of the subdivision plan, to the Office of Planning, Zoning and Permits.

SECTION V – PLAN REQUIREMENTS

1. Plan Form and Size

All maps and plans shall be prepared on sheets 24 by 36 inches, and shall contain a title box, approval signature box, name of subdivision, name of subdivider, date of map and map number or identification and relationship to index system if appropriate.

All maps and plans shall be drawn at scale of one inch equals 40 feet and shall be oriented to the page so that north is either at the top of the sheet or to the right side.

2. Subdivision Plan Requirements

The subdivision plan (also the plan for filing when properly endorsed) shall be drawn by a professional engineer and land surveyor registered with the State of Connecticut and shall be appropriately sealed. It shall show the following:

- a) Certification of Connecticut Registered Land Surveyor, under seal, to the effect that map conforms to Class A-2 survey requirements
- b) Engineers statement reading " The Subdivision Regulations of the Town of Bloomfield Town Plan and Zoning Commission are a part of this plan and approval of this plan is contingent on compliance with all requirements thereof"

Specific information to include:

- c) Lot lines and overall boundary survey to accuracy to hundredths
- d) North arrow directed upwards or to right side
- e) Zone classification of subdivision
- f) Zone classification of abutting property
- g) Names of abutting property owners
- h) Size in square feet of lots
- i) Building lines
- j) Existing and proposed streets
- k) Existing and proposed merestones
- l) Rights-of-way reserved for future streets
- m) Street names
- n) Existing and proposed easements and rights-of-way for public utilities and other public uses, mathematized to A-2 standards (8/5/88)
- o) Bearings, angles and curve data with arc lengths
- p) Open Space and proposed ownership thereof
- q) MDC or Connecticut State Plan coordinated at not less than four points on the subdivision perimeter
- r) Town Plan and Zoning Commission signature block
- s) Any conditions of approval by the Bloomfield Inland Wetlands and Watercourses Commission or Zoning Board of Appeals, including dates or such approvals. (8/5/88)

3. Site Development Plan Requirements

A site development plan is required for any subdivision exceeding 3 lots or where any improvements are required or proposed, shall contain all the information shown on the subdivision plan and the following data:

- q) Contours in two foot intervals or less (may be based on Town MDC photogrammetric map), source must be noted.

- r) All existing buildings and structures with specific identity of all buildings over 100 years old and any geologic and archaeologic sites shown on the most recent USGS maps.
 - s) Test pit locations, boring data, percolation test data, existing soil classifications and location of leaching fields if sanitary sewers are unavailable
 - t) Tentative location of wells if public or community water system is not available
 - u) Location of present and proposed drainage pipes and structures
 - v) Location of present and proposed sanitary sewer pipes and structures if sanitary sewers are available or the subdivision is within a master sewer plan area
 - w) Location of mains, hydrants or community wells if public or community water supply available
 - x) Ledge outcroppings, wooded areas, rare and unusual flora, animal nesting areas and transit routes, ridgelines, vistas and existing stone walls.
 - y) Watercourses, ponds, wetlands, if any, including any relocation proposals of any watercourse, or drainage or filling of ponds. The location of existing wells and aquifers (where an aquifer exists a small scale key map shall be included showing the area of the aquifer). Where Inland Wetlands Commission approvals or constraints are applicable, they must be shown. (11/88)
 - z) Proposed lot arrangement, lot numbers and house numbers
 - aa) Sidewalks, as required
 - bb) Location of specimen trees as required, greater than 4" in diameter (Diameter at Breast Height) if any, between the street right-of-way and building lines
 - cc) The plan for lots that are deemed poorly sloped for drainage shall incorporate elevation of proposed dwelling foundation, effect of proposed grading and/or drainage on adjacent property
 - dd) Finish grades or a grading plan if existing contours are not to be followed. The contours shall show a satisfactory contrast between existing and proposed (preferably screened)
 - ee) Existing and proposed parks, recreation areas and open spaces
 - ff) "Designated Building Area" and driveway locations and approximate final grades, where site development and /or environmental limitations dictate such treatment. In such cases, actual grading and dwelling footprint must be consistent with that shown on the plan submitted. (8/5/88)
 - gg) Flood Zone Limits, where a flood zone limit corresponds to HUD unnumbered "A" Zones, or where the limits are not defined, (if required by Town Engineer), calculated by accepted engineering methods, delineation of the 100-year flood limits, or 50-year flood limits for watersheds less than 200 acres.
4. Construction Plan and Profile Requirements
 Construction plans and profiles in addition to information required on all maps shall include detail sheets showing all special items not shown in "standard details". Construction plans and profiles may be shown on a topographic map with existing topography, which has been verified in the field, shaded or screened.

Construction plans shall also show:

- a) Existing buildings, all property lines and owner names
- b) Existing and proposed streets
- c) Location, type size and anticipated discharge of existing and proposed drainage pipes and structures
- d) Location, width and type of all existing and proposed sidewalks
- e) Locations, type size of existing and proposed sanitary sewer pipes and structures
- f) Location, type size of all private utilities
- g) Location of existing and proposed street lights
- h) Horizontal controls to establish the geometry of the proposed street (s), such as radi of intersections, curve (s) data, limits of construction, etc.
- i) Location of trees, if any to be saved/planted
- j) Watercourses, ponds, wetlands, if any, including any relocation of watercourses or draining or filing of ponds or wetlands.

- k) Plans to be signed and sealed by P.E. registered in the State of Connecticut
1. Profile Plan
The profile plan (s) shall be drawn to horizontal scale of 1"= 40' and a vertical scale of 1" = 4'. The following specific information shall be shown:
 - a) Existing profile of centerline of proposed streets
 - b) Proposed centerline
 - c) Beginning, end, low or high point, and length of vertical curves
 - d) All proposed and existing public and private utilities
 2. Grading Plan
A grading plan showing the finished contours for proposed intersections may be required at the discretion of the Town Engineer.
 3. Cross-Section Plan
The Town Engineer may require cross-sections at 50-foot intervals for proposed and reconstructed streets having cuts/fills greater than 4 feet. The section shall extend to a point where the proposed finished lines match existing ground lines. The scale shall be 1"= 5' or 1" = 10'.
 4. Utilities Plan
The utilities plan shall consist of a combined plan and profile, the grid system to be closed, at scale of 1"=40' horizontal and 1"=4' vertical, incorporating the following minimum features:

(Utilities information may be shown on construction plan- space permitting)
 - a) Public improvements, including but not limited to streets, curb and gutter, storm drainage specifying size, type and class of pipes, underdrains, and sidewalks in a form and manner as prescribed by the Director of Public Works.
 - b) Sanitary sewers, including but not limited to manholes, pipes, and laterals, in a form and manner as prescribed by the Department of Public Works and/or MDC
 - c) Utilities- gas, water, power, and telephone- including but not limited to lines, pipes, lateral, and appurtenances in a form and manner as prescribed by the Department of Public Works
 - d) Detail to special items, and pertinent notes. Plans to be signed by a registered P.E. licensed to practice in the State of Connecticut.
 5. Erosion and Sedimentation Control Plans
Erosion and sedimentation control plans shall incorporate the following in addition to the information required on all maps: (space permitting, this information may be shown on the site development map(s)).
 - a) Existing and proposed boundary and lot lines, with dimensions given in feet and areas given in feet and areas given in square feet. Existing and proposed easements and right-of-way for public utilities and other public uses with dimension given in feet.
 - b) Location of all wetlands and water courses on property and within sufficient distance beyond property line and the extent of proposed changes in their configurations
 - c) Location of proposed activities
 - d) Elevation at two-foot contour intervals. If deposition, removal or grading of material are proposed, resulting elevations shall be shown by two-foot contours intervals
 - e) Identification of wetlands soils, including locations of any soil borings, or test holes. Soil types shall be identified in accordance with categories established by the National Cooperative Soil Survey of the United States Department of Agriculture, Soil Conservation Service
 - f) A general delineation of the vegetative cover or any regulated are
 - g) Bodies of water and high water level for all inundated areas as required in Section V-3-q.

- h) All drainage appurtenances existing and proposed together with erosion control measures or temporary or permanent soil erosion control measures to be constructed in connection with, or as part of, the proposed work
- i) Details of erosion control measures

10. Required Documentation

The following documentation is required to be submitted with all applications, as required by the specific need of the subdivision plan:

- a) An engineer's quantity take-off of the items for the public improvements in a format satisfactory to the Director of Public Works
- b) Any agreement made with the State Department of Transportation for any street intersection with state highway
- c) A report of Town Sanitarian regarding private sewage disposal system where sanitary sewers are unavailable
- d) A report from the Public Works Department approving improvements that are or will be under the jurisdiction of the Town
- e) The permits from the Inland Wetlands and Water Course Commission that may be required to perform activities within regulated areas
- f) Drainage calculations in accordance with design criteria established by the Engineering Division. Design flows for the complete drainage system shall be submitted. When inlet control governs, the required head for design flow and height of structures above pipe inverts shall be shown. A map of suitable scale shall be included showing the extent of all drainage areas contributing to the drainage system.
- g) Easements and Deeds- warranty deeds to streets, appurtenant easements, and public open space shall be filed with the necessary plans and documents deemed appropriate by the Director of Public Works.

11. Optional Documentation

The Commission may require the subdivider to submit additional documentation including:

- a) Tentative plans for the future development of land abutting the proposed subdivision if such land is owned or controlled by the subdivider
- b) Plans showing relationships of road layouts, drainage and utility systems, and open space within the subdivision of such facilities, existing or potential, outside the subdivision
- c) Statements of any Town, State or Federal agency, Organization, or official that the Commission deems may have an interest in the plan.
- d) An environmental impact statement, prepared by an environmental consultant, at the expense of the applicant and under the direction of the Town Engineer, evaluating the impact of the subdivision on the land, air and water, and considering, among other elements, soils, surface and subsurface waters, topography, air quality, flora and fauna, noise levels, any other elements as may be specified by the Commission, where in the judgment of the Commission, the subdivision is of such scope to require such a statement
- e) Traffic impact report

SECTION VI- SURETY AND DEED REQUIREMENTS

1. Surety Requirements

To insure the proper and timely installation of all improvements in a subdivision, a surety must be placed with the Town to assure installation, proper construction and maintenance for 12 months following acceptance by the Town.

- a) Performance Surety
A surety in the form of a letter of credit, cash, passbook or similar security acceptable to the Town shall be filed with the Town, prior to the start of any construction work associated with an approved subdivision. Such surety shall run for one year and shall be renewed to reflect the current costs of any uncompleted required public improvements or utilities.

The surety shall be in a amount satisfactory to secure 100% of the actual construction and installation of all improvements and utilities and services to be provided in connection with the subdivision.

In addition, prior to acceptance of the improvements and utilities, The Town may draw from the surety in the possession of the Town after due notice to the subdivider, to defray the costs of maintenance and repair of such improvements and utilities or elimination of safety hazards, including but not limited to snowplowing, cleaning of drainage facilities, proper maintenance and protection of traffic, operation of sedimentation and erosion control measures and street sweeping, provided such maintenance, repair or other work is deemed by the Town to be in the public interest.

- b) Maintenance Surety
The subdivider, upon completion of the required improvements, shall file with the Town a surety acceptable to the Town in an amount equal to 10% of the original construction surety posted pursuant to Section VI-1-a. This surety will insure the maintenance/warranty of the constructed public improvements. Within a one year period following acceptance of the public improvements and utilities, the Town may draw on surety, after due notice to the subdivider, in order to defray the costs of any necessary repairs to such public improvements and utilities reasonably resulting from defects in workmanship or materials.
- c) Additional Surety
If the surety in the possession of the Town proves insufficient to defray costs incurred by the Town at any time during the period covered by the agreement, the Town may require an additional sum to be deposited with the Town to insure the satisfactory completion and maintenance of the required improvements.
- d) Partial Release of Surety
The developer may submit requests for partial releases of the construction surety to Public Works Department when the developer has completed a substantial plan. The Public Works staff will review request and may recommend a partial release. Releases will be considered in increments to a total maximum of 80%. The last partial release of 20% will not be made until completion of the construction of all public improvements, and posting of the required maintenance surety.
- e) Final Release of Surety
The Town shall return to the subdivider any balance of the maintenance surety remaining one year following final acceptance of the public improvements and required supporting documentation.

2. Subdivision Agreement

- a) Agreement
The subdivider shall enter into an agreement with the Town for the construction and installation of any public improvements and utilities by the subdivider. Such construction, or improvements of existing or planned streets and any other public improvements of existing or planned streets and any other public improvements within or adjacent to the subdivision, in accordance with the approved subdivision plan. The agreement shall provide that the full cost of construction and installation of public improvements and utilities and all expenses incidental thereto shall be borne by the subdivider, shall make reference to the approved subdivision plan, and shall provide for such construction and installation in accordance with the approved subdivision plan and standard specifications of the Town.
- b) Extension of Completion Date
The Director of Public Work may extend the completion date for public improvements upon written request by the subdivider for such extension. In no case shall such extension exceed the 5- year limitation set forth in Section IV-7 of these Regulations. As a condition of any extension, the Director of Public Works may require an increase in the amount of the surety. (8/5/88)

- c) Developer Liability
The subdivision agreement shall provide that the subdivider assume all risks, maintain adequate insurance, and hold the Town harmless from any and all claims for damages arising from his operations in connection with the public improvements and utilities until such time as the public improvements and utilities have been accepted.

3. As-Built Plans

The subdivider shall cause to be prepared, signed, sealed by a registered L.S. licensed to practice in the state of Connecticut, as-built public improvements and utilities plans which shall show all public improvements and utilities as constructed and installed. The Director of Public Works shall submit such plans for review and approval. Upon approval, a mylar of approved plan shall be submitted to the Director of Public Works.

4. Warranty Deeds

Prior to the issuance of any Authorization to Proceed, the subdivider shall provide a warranty deed running from the record owner to the Town, free and clear of all encumbrances except easements, for the street(s) and open space and other public lands, as may be required in the subdivision, together with, as appurtenant to such street(s), all required utility, access and other easements as shown on the final subdivision plans. The deed must be acceptable to the Town Attorney and shall refer to maps by title and road stationing, where necessary, for Town acceptance of public streets. Such deed shall be held in escrow by the Town, to be recorded on land records upon acceptance by the Town of such streets as Town road. In no case shall the Town deem the receipt of any deed an acceptance of such street.

SECTION VII-STREETS AND MONUMENTS

1. Specification Requirements

All streets and related facilities shall be constructed in conformance with the Town of Bloomfield Standard Specifications for Design and Construction of Subdivision Improvements.

2. Street Classification

All Streets in a subdivision will be classified in accordance with standards contained in the Bloomfield Plan of Development, adopted by the Commission.

3. Street Layout

Streets in each subdivision shall be laid out so as to provide for continuation of the principal; streets adjoining or entering the subdivision and or for the proper projection of streets as laid out in the proposed subdivision into adjoining land on which there are no existing streets.

Where the Plan of Development proposes future streets which cross or abut the subdivision, the subdivider may be required to construct these streets to the standard proposes by the Plan of Development.

4. Street Names

Proposed street names shall be subject to approval by the Commission and shall be indicated on the subdivision plan.

5. Street Width

All streets shall be constructed to the following standard widths unless specifically varied by the Commission:

Street Classification	R.O.W	Pavements Width
Arterial	80'	48'
Major Collector	60'	40'
Collector	60'	30'-36'
Local	60'	26'

Where very low volumes are anticipated, certain streets in the R-80 Zone may have pavements of 20'

Classification of streets shall conform to the Plan of Development.

6. Cul-de-sacs

Where permanent cul-de-sac streets are included in a subdivision, they shall not exceed twelve hundred (1,200) feet in length. They shall be equipped with a turnaround, which has a minimum right-of-way radius of sixty (60) feet and a minimum pavement radius of fifty (50) feet.

To reduce the amount of pavement a landscape "tear-drop" island shall be constructed within the turnaround in accordance with Town of Bloomfield standard detail for a permanent cul-de-sac is proposed as a temporary measure pending future development of adjoining properties, it shall be so designed as to be feasible of continuation in the adjacent tract. When there is a possibility of an extension of a strip and sidewalk that fall outside the limits of the normal right-of-way width, shall occupy the space by virtue of an easement delivered to the Town before acceptance of the subdivision.

Detailed planting plan must be submitted for landscaped island(s) within any cul-de-sac(s), together with appropriate caveat to be recorded on the land records, indicating that maintenance of such landscaped island(s) will not be the responsibility of the Town.

The developer extending a street from a cul-de-sac shall be required to remove the existing pavement outside of the standard traveled way, loam and seed the area in which pavement have been removed and install curbs and sidewalks in the original cul-de-sac area in accordance with Town requirements.

7. Merestones

Official Town street merestones shall be placed at all block corners at angle points, and at points of curves in streets at such intermediate points as may be necessary. The location of all monuments shall be indicated on final subdivision plan to the satisfaction of the Commission. They must be installed and their accuracy certified by a registered surveyor. The type of monuments at each designated location shall be directed by the Town all set flush with proposed grades. Additionally, all lot corners and open space in a subdivision shall be marked with pipe or other permanent markers before a certificate of occupancy can be issued.

8. Street and Traffic Signs

Street signs shall be erected at points designated by the Town, with the cost of such signs borne by the subdivider. Such signs shall be installed after binder surface in placed.

SECTION VII- UTILITIES AND SANITARY SEWER REQUIREMENTS

1. Underground Utilities

Electric power, telephone cable systems and cable TV shall be placed underground in protective conduits within the street right-of-way and shall be shown on the subdivision plan. Underground service connections to the front property line of each lot shall be installed before the street is paved.

2. Waiver of Underground Requirement

The Commission may waive the requirements of underground installation of such utilities in those portions of subdivisions abutting a n existing Town street which does not have such installations or if it finds that safe underground installation is not feasible because of soil, ledge, or water conditions or other natural or man made conditions.

3. Public Water Installation
In subdivisions where water can be furnished from a public source, all necessary mains, branch offsets to each lot, and fire hydrant shall be installed by the subdivider as approved by the corporation or municipal agency having jurisdiction, without expense to the Town, and to the satisfaction of the Town.
4. Private Water Installation
If a public water supply is not available to a subdivision, the subdivider may install a community water system subject to the approval of appropriate state and local agencies. Such system shall meet the specifications for and be capable of connection to public water system if such system should become available at a later date.
5. Health Code Requirements- Water
Where no public water system is available or community water system proposed, lots shall be served by individual wells in accordance with the provisions of local ordinances and Public Health Code of the State of Connecticut.
6. Public Sanitary Sewers
Where a connection to public sanitary sewer system is available to a subdivision, the subdivider shall install a sanitary sewer system in accordance with the provisions of the Metropolitan District Commission at no cost to the Town. No subdivision in excess of three lots shall be approved where public sewers do not serve lots smaller than 40,000 sq. ft. (11/88)
7. Health Code Requirements –Sewage
If public sanitary sewers are not available lots in a subdivision shall be served by individual private sewage disposal system in accordance with the provisions of the Public Health Code of the State of Connecticut and local ordinances and regulations.
8. Sewer Connection Required
Where a subdivision is adjacent to an area, which contains public sanitary sewers, such subdivision must be connected unless specifically exempted by the Commission.
9. Percolation Test Required
All subdivisions on septic systems will have a deep hole test, 8 feet in depth and a percolation test done by a Professional Engineer on each lot. These tests will be done at the discretion of the Health Director and in the area where the septic system will be built. These tests will be valid for three years and will be witnessed by the Town Health Official and located on subdivision plans.
10. Septic System Certification
For any lot less than two acres for which private water wells and a septic system are proposed, the Director of Health must certify that the conditions are such that no reasonable concern exists about the feasibility of septic tank development. The Director of Public Health may require any measures he deems appropriate to assure a satisfactory system or may declare that the soil conditions or size of lots are such that development with septic tanks and private wells cannot take place. In the event of such a decision the subdivider may request a review of the issue by the Commission and their decision will be final.
11. Capped Sewer Requirement
Where the Town or M.D.C. proposes a subdivision for sanitary sewers within 5 years of the date of approval the subdivision must be constructed with a capped sewer system to provide for future connection.

SECTION IX-STORM DRAINAGE AND PRESERVATION OF NATURAL DRAINAGE SYSTEM

1. Natural Drainage System

Service maps are hereby declared to be the natural drainage system for the Town and shall be preserved for such purpose. Toward this end the following rules shall apply:

- a) Diversion Prohibited
No stream or watercourse shall be diverted, filled, or enclosed in pipe without specific authorization of the Commission.
- b) Preservation of Natural Contours
Natural land contours shall be preserved within 50 feet of all streams or watercourses unless specifically authorized by the Commission.
- c) Structure/Water Course Separation
No structure shall be permitted within 50 feet of any stream or watercourse unless specifically authorized by the Commission.

2. Storm Drainage Requirements

In design of all storm drainage for the construction of streets and other facilities, it is imperative that the designer applies the utmost care to protect the life and property of area residents, the traveling public, the Town and state. It shall be of paramount importance that all facilities are planned and located so as to minimize danger to such life and property. The following guidelines shall be followed whenever possible:

- a) Proper Drainage
Storm drainage systems constructed under these Regulations shall provide for the Proper drainage of the tributary area developed in accordance with the Commission's Plan of Development and the Master Drainage plan as the May be amended from time to time.
- b) Discharge
The discharge of all storm water shall be into suitable streams wetland or rivers, or into Town drains with adequate capacity to carry the additional water. The Town shall approve all points of discharge. Where the discharge shall be into private property adjoining the proposed subdivision, proper easement and discharge rights shall be secured by the applicant for the Town before approval of the subdivision and acceptance of the drainage plan. No storm drain system shall outlet into a natural watercourse, whenever continually flowing or intermittent, so as to exceed the existing capacity of the watercourse. Storm water management measures to attenuate peak discharges shall be implemented whenever warranted and directed by Town Engineer.
- c) Incremental increase in Runoff
Whenever possible, the Town will require that runoff from the developed subdivision not exceed the rate of runoff before subdivision (zero incremental increase in runoff).

3.Sedimentation and Erosion Plan

The subdivision of any area exceeding one half acre shall require a Sedimentation and Erosion Plan to conform with P.A. 83-388 of the Connecticut General Assembly and Section 8-25 of the General Statutes as amended. The requirements for such a plan are listed in Section V (Plan Requirements) of these Regulations.

4.Site/Grind Plan for Building Permit

The owner must provide the following information before a building permit may be issued. This information shall be contained in a site plan submitted to the Town Engineer of approval. The site plan shall include:

- a) Topographic detail drawn at two (2) foot contours to a minimum of fourth (40) scale. The entire lot width shall be shown from street line to 100 feet beyond the house or further if necessary.
- b) The top of foundation elevation.
- c) Location and type of proposed dwelling.

- d) Proposed grading and/or sub-surface installations proposed to handle drainage on the lot and drives. Subsurface drainage for dwelling located within or adjacent to wetland soils must utilize granular fill material. Underdrains shall be provided as determined necessary by the Town Engineer. The Town Engineer shall determine foundation drains necessary. Foundation drains shall be provided; such drains shall be gravity flow.
- e) Effect of proposed grading and/or drainage on adjacent property.
- f) Driveway configuration. Any residential driveway in excess of twelve (12) feet in width, any commercial/industrial driveway in excess of thirty (30) feet in width, or more than (2) driveways on one site, must be approved by the Town Manager as required by Section 17-68 and 17-70 of the Code of Ordinances of the Town of Bloomfield.

All drainage rights of way and front lot corners must be pinned/staked when building permit is required. All lot corners must be pinned when certificate of occupancy is requested.

SECTION X ENDORSEMENT.SEPARABILITY AND AMENDMENTS

- 1. Amendments
These Regulations may be amended, changed, or replaced in accordance with the Genreal Statutes of the State of Connecticut.
- 2. Invalidity
Invalidity of one provision shall not invalidate any other provision.
- 3. Penalties
Penalties for non-compliance shall be in accordance with the General Statutes of the State of Connecticut.
- 4. Waiver or Variance of Regulations
The Commission may waive or vary certain specific requirements under these Regulations by a three-quarter vote of all members of the Commission provided that all of the following apply:
 - a) A condition exists which affects the subject land and is not generally applicable to other land in the area.
 - b) The granting of the waiver will have no significant effect on adjacent property or on the public health and safety.
 - c) The granting of the waiver does not alter or vary any other Town regulation such as zoning or inland wetlands.

In granting such a waiver, the Commission shall state on its records the reason for which a waiver is granted and such waiver shall be specifically set forth on both the final subdivision or resubdivision plan and by a statement recorded in the Land Records of the Town under the name of the owner f the land at the time such waiver is granted.
- 6. Moratorium on Acceptance of Subdivision Applications
Where in the judgment of the Town Plan and Zoning Commission, for reasons which shall be placed on record, the Commission feels that the development of the Town will take place in a more orderly manner, it may declare a moratorium on acceptance of subdivision applications, not to exceed 120 day, for purposes of revising these Regulations.

TOWN OF BLOOMFIELD, CONNECTICUT
STANDARD SEPCIFICATIONS
FOR THE
DESGIN AND CONSTRUCTION
OF SUBDIVISION IMPROVEMENTS

Adopted by TPZ 4/1/85
Effective 4/12/85

TABLE OF CONTENTS

<u>Section No.</u>	<u>Title</u>	<u>Page No.</u>
A.0	Street Standards	1
A.2	Intersections	1
A.3	Block Dimensions	1
A.4	Design Controls	1
A.5	Side Slopes	2
B.0	Storm Drainage for Streets	2
B.2	Estimating Storm Runoff	4
B.2.1	Runoff Determination	4
B.2.2	Characteristics of Open Channel Flow	5
B.2.3	Design Storm Criteria	5
B.2.4	Gutter Flow Analysis	5
B.2.5	Storm Water System	5
B.2.6	Detention Basins	5
B.2.7	Erosion/Sedimentation Control	6
B.2.8	Hydraulic Data	6

A.0 Street Standards

A.1 General

In the layout and design of new streets, maximum efforts are to be made to make the street and its improvements contribute to increased individual safety, serviceability and livability.

A.2 Intersections

The following criteria shall be adhered to in the establishment of intersections:

a) Number of Streets

No more than two (2) streets shall intersect or meet at any one point to form a 4-way intersection. The centerline of all streets entering the intersection shall pas through a single point.

b) Spacing of Intersection

New intersections of all commercial, industrial, and local streets shall be spaced a minimum of two hundred (200) feet apart measured form the points of intersection of the centerlines.

c) Angle of Intersection

Wherever practical all streets shall intersect at 90 degrees and no street shall intersect any other street at an angle less than 75 degrees or more than 105 degrees.

d) Radii of Intersecting Streets

The radii of intersecting collector streets and local streets shall be a minimum of twenty-five (25) feet. The radii of intersecting major collector and arterial streets shall be a minimum of thirty (30) feet.

A.3. Block Dimensions

Intersecting streets shall be laid out at such intervals that block lengths between street lines are not more than 1,200 feet or less than 200 feet. Special attention shall be given to blocks in industrial and business zones to provide for access to the lots and areas for parking and truck delivery.

A.4. Design Control

The following criteria shall be followed in the design of streets:

	<u>Arterial</u>	<u>Major Collector</u>	<u>Collector</u>	<u>Local</u>
Design Speed	50 MPH	45 MPH	30 MPH	30 MPH
Maximum Gradient	5%	6%	9%	9%
Minimum Gradient	1.0%	1.0%	1.0%	1.0%
Stopping Sight Distance	400 feet	350 feet	200 feet	200 feet
Minimum Centerline Radius Curve	1,000 feet	500 feet	300 feet	200 feet
Minimum Sight Distance for Intersections	575 feet	525 feet	350 feet	350 feet

Grades of side streets approaching through streets shall not exceed five percent for distance of not less than 100 feet from the centerline of the intersection. Vertical curves shall be used for all changes in gradient where the algebraic difference in grades exceeds 0.5 percent. All vertical curves shall be parabolic with a minimum length of 100 feet.

Roadway centerline tangents, which intersect with an angle in excess of ten degrees, shall be connected with a horizontal curve. Transition curves and spirals will not be required. Clear visibility, measured along the centerline shall be provided to meet the minimum stopping sight distance requirements noted above. A minimum tangent distance between reverse horizontal curves of 100 feet shall be provided on all classes of streets.

A.5 Side Slopes

Streets in cut or fill shall be provided with slopes not steeper than two (2) feet horizontal to one (1) foot vertical, or the permanence of the street grade shall be otherwise provided to the satisfaction of the Town. In all areas where the side slopes are steeper than four (4) feet horizontal to one (1) foot vertical and slope down from the street, quadrails shall be installed in accordance with the typical detail sheet (Town of Bloomfield Standard Details). Where new streets abut private property, the developer must obtain necessary slope rights when in cut or fill, and these slope rights shall be shown on the final layout submission to the Commission. The developer shall investigate the effect of fills on adjacent private property within the slope right area. The Commission may require the developer to install retaining walls to minimize the extent of cuts and fills.

The developer shall provide the Town with adequate evidence that no drainage problems will arise on adjacent property due to construction or fill operation.

B.0 Storm Drainage For Streets

B.1 General

The following items are to be considered in the design of storm drainage systems for new roads:

a) Design of Conduits

Except where indicated by a special study, conduits will be designed to flow “just full” or less than full. Total allowable head water depths on conduits should normally be restricted to less than 1.2 times the clear height of the conduits in order to preserve this condition. Conduits designed to flow under greater heads will require special studies and may require special treatments.

b) Placement of Drainage Structures

The first inlet in a storm drain system shall be located within 350 feet of roadway high point. Other than the first inlet, all inlet should be spaced a maximum of 300 feet apart. Drainage structures (catch basins, drop inlets, or manholes) shall be placed at each grade change along a storm drain, at each change in horizontal direction and at each junction point of two or more storm drains.

c) Placement of Conduits

Conduits, except those for underdrain conduit, will normally be laid on straight alignments, both horizontally and vertically, with structures providing access at all deflection points or at a junction of two or more lines. In special cases conduits may be placed on curved alignments but such curvature must not exceed the manufacture’s recommendations.

- d) Minimum Slope
Storm sewers shall have a minimum pitch of 0.5%. The Director of Public Works may grant variance for this requirement or his/her agent if storm sewers are designed with a minimum self-cleaning velocity of 3-feet per second with full flowing pipes.
- e) Minimum size of Conduit
Circular conduits of less than 15 inches nominal diameter shall not be used for the transportation of surface drainage. Conduits providing for the passage of area drainage from one side of the street to the other shall not be smaller than 18 inches nominal diameter. Pipe arches of equal periphery to the above noted circular conduits may be substituted where required.
- f) Minimum Cover
A minimum cover of three feet shall be provided for all storm drains under roadway, unless otherwise approved by the Public Works Director.
- g) Outlet Structure
All storm drain system outlets shall be terminated with an approved outlet structure.
- h) Diversion of Water from Watershed or Watercourse
The Diversion of drainage from one watershed or watercourse to another is not permitted unless special studies are presented in all cases of diversion to support the need, therefore, and to minimize the potential damages which may be consequent to the diversion.
- i) Underdrains
Underdrains shall be installed in all areas where wet conditions prevail or where directed by the Director of Public Works on his/her agent. Underdrains shall consist of a trench cut below the elevation of the bottom of the subbase, containing a suitable perforated or slotted conduits and backfilled with a previous material. The conduits for underdrains shall be not less than 6 inches in diameter. Outlets for underdrain conduits shall be connected directly to drainage structure is available, the outlet conduit shall be terminated with an approved end wall.
- j) Intersections
Inlets shall be installed to properly drain all intersections of new streets and intersections of new streets with existing Town or State streets.
- k) Type of Pipes
Reinforced Concrete Pipes (RCP) Class IV shall normally be specified for storm drainage system except when fill heights require Class V. Asphalt Coated Corrugated Metal Pipe (ACCMMP) with paved inverts should be used where clearance is limited by utilities, on grades over 10%, corrugated metal pipes shall be as suggested by the manufacturers and approved by public Works depending on fill heights above top of pipe.
- l) Ditches
The use of ditches to carry storm water to natural watercourses will not be allowed except in special cases, and then only with the prior approval of public Works Department.

- m) Special Structures
Bridges, box culverts, deep manholes, nonstandard end walls, siltation chambers and other special structures shall be designed in accordance with good engineering practices and shall be subject to approval of the Public Works Department. Bridges and box culverts shall be designed to carry at least full right of way width of the required street.

- n) Easements
Easements at least twenty-five (25) feet in width, offset 10 ft. and 1-5 ft. respectively on the storm drain, shall be provided for all storm water which will not be installed in right of ways or lands to be dedicated to the Town. Easements shall be provided for ditches/channels and shall be sufficient minimum width to include a ten (10) foot access strip in addition to the width of the ditch/channel from top of bank to top of bank.

- o) Private Drains
The Public Works Department shall approve the size and locations of all private storm drains that connect to the Town storm drain system. The waiver shall relieve the Town of Bloomfield of any responsibility in the event of any failure of the storm drainage system. This waiver must be transferred with the deed of the property to buyers. Rear yard drains and cellar of foundation drains that are connected to storm drainage system must be shown on the final as-built plan of the drainage system.

B.2 Estimating Storm Runoff

The following guidelines are made available to assist in the development of the design of drainage facilities, but the designs themselves should be the product of the application of sound engineering practices and judgment based on the best available data.

B.2.1 Runoff Determination

The method to be used in determining runoff for drainage areas of less than 200 acres is the Rational Method.

$$Q = AIR$$

Where: Q = Rate of Runoff in Cubic Feet per Second

A = Area to be Drained in Acres

I = Percentage of Impervious of the Area

R = Maximum Average Rate of Rainfall over the Entire Drainage Area in Inches per Hour, Which may Occur During the Time of Concentration

For drainage areas greater than 200 acres the S.C.S. (solids Conservation Service) TR #55 and/or TR #20 is to be used.

B.2.2 Characteristics of Open Channel Flow

The flow characteristics of open channel flow and conduits for storm drainage should be computed by the use of the Manning equation:

$$Q = \frac{A}{N} 1.486 R^{2/3} S^{1/2}$$

Where: Q = Discharge

A= Wetted Area of Conduit

N= Coefficient of Roughness

R = Hydraulic Radius in Feet

S = Slope in Foot per Foot

B.2.3 Design Storm Criteria

All storm drainage facilities shall be designed based on the following storm return frequency criteria:

- a) Drainage System
All drainage systems shall be designed for a storm return frequency of 10 years.
- b) Discharge Pipe at Outlet
All outlets shall be designed for a storm return frequency of 10 years.
- c) Cross Culverts
All culverts crossing any street shall be designed for a storm return frequency of 25 years.
- d) Minor Streams (200 to 1,000 acres)
All minor streams shall be designed for a storm return of 50 years.
- e) Major Streams (more than 1,000 acres)
All major streams shall be designed for a storm return frequency of 100 years.

B.2.4 Gutter Flow Analysis

The designer is asked to perform drainage computations to determine catch basin spacing and need to double basins in roadway sags.

B.2.5 Storm Water System Analysis

The designer is asked to perform drainage computations to determine adequacy of storm water systems.

B.2.6 Detention Basins

The Commission may require the construction of detention basins for the purpose of controlling peak discharge from a developed area, upon recommendations by the Department of Public Works. The storm drainage and stream flow computations shall be sufficient adequacy so that the Director of Public Works and the Commission's staff can make an assessment of the need for detention.

Detention basins shall be designed for a storm return frequency consistent with Article B.2.3 and shall be capable of reducing peak flows for storms with return frequencies ranging from 2 through 25 years at a minimum, or as dictated by the Commission.

The procedure for computing the outflow from detention areas consists of the development for synthetic hydrographs and routing of these hydrographs through the detention basin. If a significant amount of drainage, which is not controlled by the detention, is effective at the site, composite hydrographs, correlating in time the outflow from the detention basin and the flow from the uncontrolled, may be required to determine the design discharge applicable at the site.

The method developed by the Soil Conservation Service, United States Department of Agriculture, for developing synthetic hydrographs and routing these hydrographs through the detention basins will be used.

The Public Works Department will dictate the types and requirements in the design of detention basins.

Maintenance roads and easements shall be provided for all permanent facilities. The road shall be 12 feet wide having 12 inches of rolled gravel formed in two equal lifts and surface treated. The gradient shall not exceed 15%.

The Public Works Department will determine the need for fencing and/or screening the facility.

B.2.7 Erosion and Sedimentation Control

Erosion and sedimentation control measures, as required by the Commission, Public Works, and the Inland Wetlands & Watercourses Commission shall be installed and/or employed to prevent soil erosion and resultant sedimentation, particularly as such sedimentation might contaminate rivers, stream, wetlands, ponds, or create a nuisance to abutting property owners.

Required sedimentation and erosion measures shall be installed prior to the initiation of construction activities, and maintained or replaced, as necessary, until distributed areas are stabilized. The Town Engineer may modify sedimentation and erosion control requirements, particularly when extraordinary climatic or weather conditions should dictate such modifications. The developer/builder shall employ the development and design standards governing sediment and erosion control as outlined and illustrated in the following publications:

1. "Connecticut Guidelines for Soil Erosion and Sediment Control", The Connecticut Council on Soil and Water Conservation, January. 1985.
2. "Recommendations for Erosion and Sediment Control During Land Use Change", The Southern New England Chapter, Soil Conservation Society of American, January, 1978.

Temporary or permanent sedimentation structures shall be provided with maintenance roads and easements, as appropriate. The road shall be 12 feet wide, having 1 ½ inches of rolled gravel formed in two equal lifts and surface treated. The gradient shall not exceed 15%. The Public Works Department shall determine the need for fencing and/or screening the facility.

B.2.8 Hydraulic Data and Submission to the Commission

Whenever there is extensive hydraulic data and calculations being submitted in conjunction with a development, it is requested that a summary sheet be prepared showing the essential information.

