

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL  
LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management  
Plans**

---

**ARTICLE XIII, Stormwater Management Plans**

---

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL  
LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management  
Plans / § 170-119. General intent.**

**§ 170-119. General intent.**

The general intent of this article is to manage and limit the adverse effects of surface water runoff created by alteration of the ground cover or natural runoff patterns, to establish storm drainage requirements and to regulate encroachments and land use in floodways and flood hazard areas.

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL  
LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management  
Plans / § 170-120. Purpose. [Amended by Ord. No. 7-1992]**

**§ 170-120. Purpose. [Amended by Ord. No. 7-1992]**

The purpose of this article is to protect the public health, safety and welfare of the citizens of the Township and the surrounding communities and to accomplish the following purposes:

- A. To maintain the adequacy of natural stream channels and prevent accelerated bank erosion through control of the rate and velocity of stormwater runoff.
- B. To preserve present adequacy of culverts and bridges by avoiding artificially induced flood peaks.
- C. To minimize public expenditures for replacement or repair of public facilities resulting from induced flood peaks.
- D. To prevent damage to life and property from flooding by controlling excessive rates, velocities and total quantities of runoff.
- E. To maintain or improve the relationship of the site to the natural or established drainage

pattern of the subwatershed(s) of which it (they) is (are) a part.

- F. To minimize public safety hazards at any stormwater detention facilities constructed as part of a subdivision or pursuant to a site plan.

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management Plans / § 170-121. Plan required.**

**§ 170-121. Plan required.**

- A. A stormwater management plan shall be filed as part of all site plan applications involving nonresidential uses, all development applications involving residential uses on premises exceeding five acres and all soil removal applications.
- B. The Planning Board or Zoning Board of Adjustment may waive the requirement of a stormwater management plan upon the recommendation of the Township Engineer if he finds that there is no appreciable increase anticipated in rate, velocity or quantity of runoff based on the proposed subdivision or site plan as compared with that emanating from the site in its natural condition.
- C. The Planning Board or Zoning Board of Adjustment may waive any specific requirement of this article after consideration of the recommendations and findings of the Township Engineer and the Environmental Commission where such waiver would be in the best interest of the Township.

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management Plans / § 170-122. Review and approval. [Amended by Ord. No. 7-1992]**

**§ 170-122. Review and approval. [Amended by Ord. No. 7-1992]**

- A. The stormwater management plan shall be submitted to the Township Engineer for his review and recommendations. The Township Engineer shall report to the Planning Board or Zoning Board of Adjustment as to whether or not the stormwater management plan complies with the requirements of this article. No development application shall be considered complete until the Township Engineer submits his report. The Township Engineer's consideration of the plan shall be guided by but not limited to the following factors:
  - (1) The suitability of the applicant's proposed surface water management techniques,

involving on-tract and/or off-tract measures, with respect to the total stormwater runoff, velocities and rates of discharge which the applicant's proposed construction or land disturbance may generate.

- (2) Existing topographic, present vegetation and hydrologic soil factors.
  - (3) Groundwater recharge and discharge areas, wet soils, alluvial and poorly drained soils and seasonal high groundwater table level.
  - (4) The design storms as specified in § 170-123, Plan details.
  - (5) Natural drainage now and pattern through the watershed(s) affected by the plan.
  - (6) The nature of the watershed of which the proposed development is a part and the receiving stream channel capacities.
  - (7) Land uses in both the immediate vicinity and surrounding drainage region.
  - (8) Any other applicable or relevant environmental and resource protection ordinances, statutes and regulations.
  - (9) Any other factors relevant to the coordinated and harmonious development of the site, vicinity, Township and region.
  - (10) Conformity with any state regulations concerning the protection of public safety with respect to stormwater detention facilities adopted pursuant to N.J.S.A. 40:55D-95.1.
- B. If the appropriate Board determines the proposed development will satisfy the standards of this article, the Board shall approve the stormwater management plan as part of site plan approval or subdivision approval.
- C. If the appropriate Board determines the proposed development will generate or alter stormwater runoff which will not be managed in accordance with the standards of this article, the Board shall disapprove the proposed site plan or subdivision, stating the reason.
- D. The appropriate Board may condition its approval of the stormwater management plan by imposing lawful requirements. These requirements shall be provided and maintained as conditions to the establishment, maintenance and continuance of any use or occupancy of any structure or land.

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management Plans / § 170-123. Plan details.**

**§ 170-123. Plan details.**

The stormwater management plan shall include the following:

- A. The lot and block numbers of the site as shown on the current Tax Map of the Township.
- B. The name(s) and addresses of the owner(s) of the site; size and location of the site on a map of the watersheds.
- C. The location, description and quantification of significant natural and man-made features on and surrounding the site, including topography, all impervious surfaces, soil and drainage characteristics with particular attention to the location and description of presently existing surface water runoff control devices, mechanisms or areas, watercourses, swamps, floodplains, swales, berms, woods and vegetation, steep slopes and other features critical to the purposes of this article.
- D. The location, description and quantification of proposed changes to the site, whether of a permanent or temporary nature, with particular attention to impervious surfaces and interception of currently dispersed flow which may have an impact upon the capacity of the soil, vegetative cover and drainageways to absorb, retard, contain or control stormwater runoff.
- E. The proposed measures for stormwater management.
- F. The computations, using the rational method ( $Q=CIA$ ), showing both the peak rate and peak velocity and total quantity of stormwater runoff from the site, both before and after the proposed development. Total quantity of stormwater runoff shall be computed under the following conditions: a ten-year storm, 2.1 inches of rain during a sixty-minute period, and a one-hundred-year storm, 3.1 inches of rain during a sixty-minute period. The rain shall be assumed to be falling at a uniform rate during the specified period for the computation of total quantity of runoff and at a varying rate for the computation of hydrographs.
  - (1) The following runoff coefficients shall be used for the various soil, vegetation and other surface conditions:

**Runoff Coefficients**

**Surface Character**

**Runoff Coefficients**

**Ten-Year Storm Frequency**

**Runoff Coefficients**

<b>Surface Character</b>	<b>Runoff Coefficients</b>
All paved surfaces	0.80 to 0.95
Roofs	0.80 to 0.95
Lawns, less than 2% slopes	0.17 to 0.21
Lawns, 2% to 7% slopes	0.22 to 0.26
Lawns, over 7% slopes	0.29 to 0.41
Woodlands, less than 2% slopes	0.10 to 0.14
Woodlands, 2% to 7% slopes	0.15 to 0.19
Woodlands, over 7% slopes	0.22 to 0.30

**Runoff Coefficients**

<b>Surface Character</b>	<b>Runoff Coefficients</b>
<b>One-Hundred-Year Storm Frequency</b>	
All paved surfaces	0.85 to 0.96
Roofs	0.85 to 0.96
Lawns, less than 2% slopes	0.28 to 0.33
Lawns, 2% to 7% slopes	0.34 to 0.37
Lawns, over 7% slopes	0.41 to 0.52
Woodlands, less than 2% slopes	0.20 to 0.24

**Runoff Coefficients**

<b>Surface Character</b>	<b>Runoff Coefficients</b>
Woodlands, 2% to 7% slopes	0.26 to 0.31
Woodlands, over 7% slopes	0.34 to 0.42

- (2) Where the applicant is of the opinion that required computations do not adequately reflect the true impact of the proposed development on stormwater control, computations using any acceptable engineering approach with data from any documented source may be included as supplemental information.
- G. If, in the opinion of the Township Engineer, a complete hydrograph is needed to adequately analyze the proposed development, a hydrograph for the specified ten-year and one-hundred-year storm shall be included. When required, such hydrographs shall show, in graphical form, the water flow time sequence for runoff from the site. Supporting calculation details shall be furnished indicating the assumptions and formula used, including relevant intermediate results such as the water flow time profile of the inflow to a retention or detention basin and the control characteristics and physical design of the discharge rate metering device (stormwater pipe, weir, etc.).
- H. Appropriate plans, profiles and cross sections every 50 feet, of all proposed and existing culverts, bridges, storm sewers, drainage ditches and streams within the subdivision and within 300 feet upstream and downstream of the subdivision, together with their sizes, elevations, grades and capacities, as approved by the Township Engineer.
- I. A flood routing of the discharge channel shall be provided so that the coordination of discharges proposed from the tract with those from off-tract and the effects of stream bank erosion can be analyzed.
- J. The designation of critical or other areas to be left undisturbed shall be shown in sufficient detail to be accurately marked on the plan.
- K. The schedule of the implementation of the stormwater management plan, in connection with the starting and completion dates of the development.
- L. The proposed maintenance schedule for all stormwater management structures, specifying current maintenance, continued maintenance and responsibility for the same.

M. All revisions of the plan and such additional data as the Township Engineer may require.

**CODE OF THE TOWNSHIP OF LIVINGSTON, NEW JERSEY / PART II: GENERAL LEGISLATION / Chapter 170, LAND USE / ARTICLE XIII, Stormwater Management Plans / § 170-124. Design standards.**

**§ 170-124. Design standards.**

A. General standards. In the preparation of a stormwater management plan, the following general principles shall be adhered to:

- (1) The maximum rate and velocity of stormwater runoff from the site following completion of the proposed development shall not exceed that of a ten-year storm prior to development. Detention basin shall be designed to provide storage for the runoff from the one-hundred-year design storm.
- (2) Maximum use shall be made of presently existing stormwater runoff control measures, mechanisms or areas such as existing berms, terraces, grass waterways, favorable hydrologic soils, swamps, swales, watercourses, ponds, woodlands and floodplains, as well as any proposed management structures.
- (3) The plan shall be compatible with the soil erosion and sediment control plan required by the Hudson-Essex-Passaic Soil Conservation District.
- (4) The plan shall avoid concentration of flow and shall provide for reduction of velocities at all discharge points.
- (5) Reestablishment of vegetative cover shall be in accordance with Standards for Soil Erosion and Sediment Control in New Jersey, P.L. 1975, c. 251 (N.J.S.A. 4:24-39 et seq.).
- (6) The plan shall establish permanent surface water management measures prior to construction or other land disturbance, including seeding and establishing sod in grass waterways.

B. Detail design standards.

- (1) All outfalls shall be designed in a manner to reduce velocities at the outfalls and provide wherever possible for the dissipation of energy at the discharge points and shall provide stream channel protection.
- (2) All structures and land treatment practices shall conform to Standards for Soil Erosion

and Sediment Control in New Jersey, P.L. 1975, c. 251 (N.J.S.A. 4:24-39 et seq.).

- (3) All water-carrying structures and retention and detention areas shall be completed and stabilized prior to diversion of water to them.
- (4) Drainage and watercourses which normally carry or receive stormwater runoff shall not be overloaded with increased runoff, sediment or other pollution resulting from disturbance of soil and vegetation or incident to development, construction or other activity.

C. Plan implementation.

- (1) Limit of construction. Critical areas or other areas to be left undisturbed shall be physically marked with survey stakes or protected with temporary snow fencing prior to any land disturbance.
- (2) Timing. The Board shall require the construction and installation of stormwater management improvements in accordance with the implementation schedule of the site plan or subdivision approval.
- (3) Inspection. The applicant shall bear full and final responsibility for the installation and construction of all required stormwater runoff control measures required by the approved plan formulated under this article. The Township Engineer shall inspect the site during its preparation and development.
- (4) Maintenance.
  - (a) No person shall place or cause to be placed any obstruction of any kind or remove, change, alter, destroy or interfere in any way with any stream, pond, spring, lake or natural watercourse of any kind so as to interfere with the natural flow or change the course or location thereof in any manner, whether the same be located on public or private property and whether said prohibited act or acts are conducted upon the property of the one so acting, without first obtaining the necessary permission to do so from the Township Council upon written application made for such purpose to the Township Council.
  - (b) The Township shall retain the right to enter and make repairs and improvements where necessary to ensure that all control measures, as well as areas dedicated to stormwater retention and detention or groundwater recharge, are adequately maintained and preserved. Upon compliance with N.J.S.A. 40:55D-93 et seq., the Township shall charge the owner for the costs of these services if such maintenance is specified in the plan to be the owner's responsibility.